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AN APPROACH TO CHANGING TEACHERS' POSITIVE AND
NEGATIVE VERBALIZATIONS, AND ITS EFFECT
ON STUDENT ATTENDING BEHAVIOR

An Abstract of a Dissertation by
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The problem. The purpose of this study was to analyze experimentally the effects on an elementary school principal's cueing technique on the number of positive and negative teacher verbalizations, and to measure the effect that this verbalization change had on the total number of students involved in on-task behavior in the classroom.

Procedure. This research was conducted in two adjoining second grade classrooms in a rural elementary school in mid-Iowa. The elementary school principal served as the primary observer/experimenter, while the school psychologist functioned as an observer for reliability purposes. The two teachers who participated in this investigation had twenty-four and twenty-three students respectively in their classrooms ranging in age from seven years, six months, to eight years, eleven months.

To analyze the treatment procedures a multiple-baseline design was employed for the two classrooms. This involved four sequential conditions consisting of: condition I (baseline), condition II (treatment one), condition III, (treatment two), and condition IV (reversal). The baseline rate was taken for the number of positive, negative, and neutral teacher verbalizations, as well as the number of students involved in on-task behavior. The principal recorded the baseline for a duration of four consecutive days in Classroom A and for nine consecutive school days in Classroom B. During treatment one, which was applied for five consecutive days in each classroom, the principal recorded and cued the teachers each time they emitted a negative verbalization. Upon being cued the teachers were instructed to find four students engaged in attending behavior and praise them individually. Treatment two immediately followed with the only difference being that it was applied twice a week for a duration of three weeks rather than five consecutive days. At the conclusion of treatment two the principal returned to baseline and recorded only.

Findings. The results demonstrated that the systematic application of the cueing technique by the principal substantially increased the number of positive teacher verbalizations and conversely decreased the number of negative teacher verbalizations. In Classroom A there was a positive teacher verbalization increase of 129 percent and a negative teacher verbalization decrease of 88 percent. In Classroom B there was a positive teacher verbalization increase of 344 percent and a negative teacher verbalization decrease of

88 percent. The results also demonstrated that this verbalization change effected an increase in the total number of students involved in on-task behavior. In Classroom A 16 percent more students were involved in on-task behavior, while in Classroom B 7 percent more students were involved in on-task behavior in posttreatment.

Conclusions. This study yielded empirical evidence that an elementary school principal could apply a cueing technique to increase the number of positive teacher verbalizations while decreasing the number of negative teacher verbalizations. This procedure and the resulting verbalization change directly increased the number of students involved in on-task behavior in both experimental classrooms. This study provided a simple yet viable procedure for principals to use to assist teachers directly in the classroom and a technique for teachers to use effectively with students.

Recommendations. Recommendations include: (1) replication with principals at different grade levels; (2) replication with teachers who are less open, responsive, and cooperative (e.g. non-volunteers) than those involved in this study; (3) additional research exploring the effectiveness of these treatment conditions with minority students and urban communities.

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A Dissertation
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In Partial Fulfillment
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Doctor of Education

by
James M. Stumme

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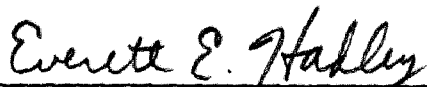
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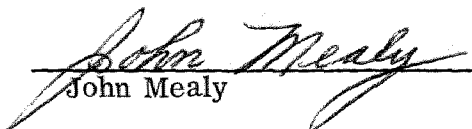
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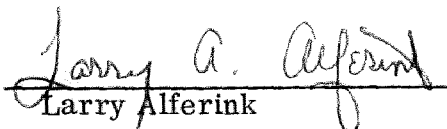
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Chapter 1

INTRODUCTION

Occasionally teachers are unaware that their responses directly affect student classroom behaviors. Often these same educators do not recognize that their verbal interactions with students have any immediate effect on the on-task behavior of these students. (On-task behavior is defined as the student directed or oriented toward the task assigned to him by the teacher.) These teachers believe that when a student engages in disturbing, inappropriate, or disruptive behavior in school, the student is reflecting home and family difficulties, is experiencing an emotional maladjustment, is portraying a lack of age-appropriate maturity, or is possibly even demonstrating an organic dysfunction. Although some of these rationalizations might be partially attributed to the student's behavior, an ever increasing body of knowledge indicates that a large portion of the behaviors which teachers find inappropriate are directly related to the teachers' own behaviors. According to Thomas, Becker, and Armstrong, "A teacher can modify and control the behavior of her students by controlling her own responses."¹

Sometimes, however, teachers do realize that their responses are partially responsible for inappropriate student behavior. These teachers do

¹D. R. Thomas, W. C. Becker, and M. Armstrong, "Production and Elimination of Disruptive Classroom Behavior by Systematically Varying Teacher's Behavior," Journal of Applied Behavior Analysis, I (1968), 35.

realize that their responses directly affect student behavior and may, in fact, be reinforcing students for not working on-task. This can be caused by the teacher attending more to inappropriate student behavior than to appropriate student behavior.

Once the teacher is made aware of his ability to control inappropriate student behavior, it is a matter of finding and implementing the right technique to change undesirable student behavior. Current research suggests that one of the most efficacious techniques for teachers to change student behavior is applied behavior analysis. Baer, Wolf, and Risley¹ characterize applied behavior analysis as a procedure which analyzes, experimentally, a target behavior and then specifies a treatment to change or alter that behavior. Then the treatment strategy is applied to the target behavior and evaluated to ascertain if it is responsible for the occurrence or nonoccurrence of that behavior.

Multiple experimental evidence has shown that applied behavior analysis, in the form of contingent teacher attention, is a powerful treatment for changing disturbing, inappropriate, or disruptive student behavior. Contingent teacher attention is the process by which the teacher attends to appropriate student behavior and ignores or punishes inappropriate behavior.

Contingent teacher attention was illustrated in an investigation by

¹D. M. Baer, M. M. Wolf, and T. R. Risley, "Some Current Dimensions of Applied Behavior Analysis," Journal of Applied Behavior Analysis, I (1968), 91-97.

Hall, Lund, and Jackson¹ in which the authors found that systematic teacher attention clearly increased the student's study behavior. Likewise, Madsen, Becker, and Thomas² demonstrated that attending to appropriate behavior and ignoring inappropriate behavior was effective in changing student behavior in elementary classrooms. The utility of applied behavior analysis was also shown in a study by Ferritor et al.³ In this study math accuracy increased while inappropriate behavior decreased simultaneously as the teacher reinforced both math accuracy and appropriate social behavior. Hasazi and Hasazi⁴ further found that contingent teacher reinforcement was a significant force in changing student behavior. Various other studies, presented in Chapter 2, concur that applied behavior analysis in the form of contingent teacher attention is effective in changing student behavior in the classroom.

However, even when teachers realize that applied behavior analysis is a very effective technique for changing student behavior, there is often little assistance available which will help the teacher implement that

¹R. V. Hall, D. Lund, and D. Jackson, "Effects of Teacher Attention on Study Behavior," Journal of Applied Behavior Analysis, I (1968), 1-12.

²C. H. Madsen, W. C. Becker, and D. R. Thomas, "Rules, Praise, Ignoring: Elements of Elementary Classroom Control," Journal of Applied Behavior Analysis, I (1968), 139-150.

³D. E. Ferritor et al., "The Noneffects of Contingent Reinforcement for Attending Behavior on Work Accomplished," Journal of Applied Behavior Analysis, V (1972), 7-17.

⁴J. E. Hasazi and S. E. Hasazi, "Effects of Teacher Attention on Digit-Reversal Behavior in an Elementary School Child," Journal of Applied Behavior Analysis, V (1972), 157-162.

technique directly in the classroom. College and university coursework may be somewhat helpful but is usually not tailored to the teachers' specific needs. Hall et al.¹ found that formal instruction in operant methods of classroom management, measurement, and application proved to be an effective way to modify teacher behavior. But, they also found that many teachers did not have access to colleges and universities which offered such courses.

There are a few of these training centers such as the program developed for teacher training at the University of Kansas² and the consulting teacher program at the University of Vermont.³ But, programs such as these are few and far between.

Besides college coursework other possible sources for training teachers to use contingent teacher attention are itinerant personnel, such as counselors, psychologists, and various consultants. These personnel are potentially helpful but because of their itinerant roles they may not be available when needed, may be unfamiliar with the teacher's idiosyncrasies and teaching methods, and may be unacquainted with the school's philosophy of education.

¹R. V. Hall et al., "Teachers and Parents as Researchers Using Multiple Baseline Designs," Journal of Applied Behavior Analysis, IV (1971), 247-255.

²R. V. Hall and R. Copeland, "The Responsive Teaching Model: A First Step in Shaping School Personnel as Behavior Modification Specialists," Implementing Behavioral Programs for Schools and Clinics, eds. F. W. Clark, D. R. Evans, and L. A. Hamerlynck (Champaign, Ill.: Research Press, 1972), pp. 125-150.

³H. S. McKenzie et al., "Training Consulting Teachers to Assist Elementary Teachers in the Management and Education of Handicapped Children," Exceptional Children, XXXVII (1970), 137-143.

Probably the most logical person to actively support the teacher is the school principal. The principal is usually in the building, is familiar with the teacher's idiosyncrasies and teaching methods, and is knowledgeable of the school's philosophy of education. Also, the school principal is charged with providing supervision, in-service training, evaluating the teacher's progress, and observing classroom activities. Thus, the school principal is not as likely to disrupt a classroom as would an itinerant person.

In addition, current investigations indicate that modern principals are moving away from purely administrative roles into the acceptance of duties as educational leaders. As educational leaders, ". . . the principal must effect positive changes in the teacher's teaching behavior in the classroom so that teachers can in turn initiate and maintain positive changes in student behavior."¹

A series of recent studies has included the elementary principal in systematic application of contingent attention with teachers, students, and parents and has shown that the principal can successfully implement such techniques. Brown, Copeland, and Hall² experimentally indicated that a principal can effectively modify the behavior of students regarding tardiness, absenteeism, and disruptiveness by contingent praise, play, and free time

¹R. E. Brown, "Effects of an Elementary School Principal Systematically Reinforcing Students for Learning Multiplication Facts" (unpublished Doctoral dissertation, University of Kansas, 1975), pp. 59-60.

²R. E. Brown, R. E. Copeland, and R. V. Hall, "The School Principal as a Behavior Modifier," Journal of Educational Research, LXVI (1972), 175-180.

activity. Similarly, Brown, Copeland, and Hall¹ had an elementary principal use reinforcement and shaping procedures to modify an eleven-year-old school-phobic boy's intense fear of the classroom. Brown² examined the effects of various principal-initiated techniques on the mastery of academic facts by inner-city elementary school students. An elementary school principal used social attention in the form of praising parents for sending their children to school in a study by Copeland et al.³ The increase in student attendance behavior was unique because the effects of the principal's praise were measured by observing the behavior of the children, not their parents. In research conducted by Copeland, Brown, and Hall⁴ a principal increased attendance and academic performance of elementary school children through contingent attention. Cossairt, Hall, and Hopkins⁵ and Cossairt⁶ systematically

¹R. E. Brown, R. E. Copeland, and R. V. Hall, "School Phobia: Effects of Behavior Modification Treatment Applied by an Elementary School Principal," Child Study Journal, IV (1974), 125-133.

²Brown, loc. cit.

³R. E. Copeland et al., "Effects of a School Principal Praising Parents for Student Attendance," Educational Technology, XII (1972), 56-59.

⁴R. E. Copeland, R. E. Brown, and R. V. Hall, "The Effects of Principal-Implemented Techniques on the Behavior of Pupils," Journal of Applied Behavior Analysis, VII (1974), 77-86.

⁵A. Cossairt, R. V. Hall, and B. L. Hopkins, "The Effects of Experimenter's Instructions, Feedback, and Praise on Teacher Praise and Student Attending Behavior," Journal of Applied Behavior Analysis, VI (1973), 89-100.

⁶A. A. Cossairt, "The Effects of a Principal's 'Supervision Package' on Teacher and Student Behaviors in the Classroom" (unpublished Doctoral dissertation, University of Kansas, 1974).

used instructions, modeling, feedback, and contingent praise by an elementary school principal to increase teacher praise and positive feedback for student attending and instruction following behavior in teacher-selected target students.

The latter two studies listed above are excellent illustrations of how principals can effectively change student behavior by changing teacher behavior. This appears to be a very legitimate and ethical way to change student behavior because it increases desirable student behavior via increasing the teacher's output of praise and positive feedback. However, most of the present research selected rather few target children in each classroom rather than all classroom students, utilized sophisticated research practitioners with advanced training in behavior techniques, and consumed massive amounts of teacher, principal, and specialist time.

Rationale for the Study

The present study evolved from prior research which engaged the principal in demonstrating the significance of teacher attention on the classroom behavior of students. Despite the above investigations and the research which will be presented in Chapter 2, there is a scarcity of research involving school principals' actively assisting teachers to change their verbalizations directly in the classroom. In addition, there is an even greater lack of research on the effects of this assistance on the total population of students in the classroom involved in on-task behavior. Therefore, in order to furnish more convincing data the present study was designed to be implemented

directly in the classrooms, to examine the on-task behavior of each and every student in the classrooms, and to utilize a minimum of principal and teacher treatment time.

Therefore, this study will analyze experimentally the effects of an elementary school principal's cueing technique on the rate of positive and negative teacher verbalizations and measure the effects that this verbalization change has on the total number of students involved in on-task behavior in the classroom.

Statement of the Problem

This study will answer the question, "Can an elementary school principal systematically change the rate of positive and negative teacher verbalizations via a cueing technique and effect change on the total number of students involved in on-task behavior?"

Statement of the Null Hypotheses

Following the statement of the problem, the hypotheses are stated in null form for experimental purposes.

At the conclusion of this treatment strategy the principal's systematic cueing technique will demonstrate no change on:

- 1) the number of positive teacher verbalizations from pre- to post-treatment;
- 2) the number of negative teacher verbalizations from pre- to post-

treatment;

- 3) the total number of students involved in on-task behavior from pre- to posttreatment.

Statement of the Directional Hypotheses

If, in fact, the elementary school principal can systematically change the rate of positive and negative teacher verbalizations to students via a cueing technique, then:

- 1) this treatment strategy will increase the number of positive teacher verbalizations;
- 2) this treatment strategy will decrease the number of negative teacher verbalizations;
- 3) this treatment strategy will increase the total number of students involved in on-task behavior.

Limitations of the Study

This study has been limited to an investigation in a relatively small sized (population approximately 325) rural elementary school. The study was made feasible because of the openness and responsiveness of the principal and the cooperativeness of the two second grade teachers. Inferences of the data obtained in this study are valid only if they refer to principal, teacher, and student populations which are similar to the aforementioned elementary school. Inferences made to other populations which are significantly different from

this investigation will be subject to more error. It is appropriate, however, to use the strategies employed in this research to conduct similar studies with other populations of principals, teachers, and students.

Much research preceded the present investigation. Therefore, the following chapter will review and discuss the prior studies upon which this investigation is an extension.

Chapter 2

REVIEW OF THE RELATED LITERATURE

INTRODUCTION

For the purpose of this investigation, a summary of the research and related literature will be presented in six sections in the following sequence:

(1) The first section will present studies in which contingent attention was used effectively with handicapped and aggressive-disruptive children.

(2) The second section will describe studies in which contingent social reinforcement was implemented with preschool and kindergarten children.

(3) The third section will portray the usage of contingent social reinforcement on the behavior of elementary students.

(4) The fourth section will present studies in which contingent social attention was used effectively with secondary students.

(5) The fifth section will illustrate the techniques which have been effectively applied to train teachers to use contingent social reinforcement.

(6) And finally, the sixth section will describe research in which principals have taken an active role in applying reinforcement techniques and have trained teachers to use contingent teacher attention.

Handicapped and Aggressive-Disruptive Children

Various recent investigations have demonstrated that social attention

affects student behavior. Hall and Broden¹ increased the rate of manipulative play, climbing, and social play by systematically making adult attention contingent on those behaviors in three brain-injured children. Likewise, Parsonson, Baer, and Baer² used contingent attention to modify behavior of institutionalized mental retardates. In this study two teachers emphasizing the development of preacademic and selfhelp skills for retarded children ages four to eight, demonstrated that contingent teacher attention in the form of verbal statements of approval, praise, encouragement, or affection; smiles, hugs, pats, etc. effectively changed student behavior.

Similarly, Foxx and Azrin³ utilized contingent teacher attention to eliminate aggressive-disruptive behavior of retarded and brain-damaged patients. The procedure provided disruptive offenders with re-education, removal of the reinforcement for the offense, and time-out from general positive reinforcement. The disrupter was required to overcorrect the general psychological and physical disturbance created by the offense. The authors found that this procedure reduced the aggressive-disruptive behavior of all subjects

¹R. V. Hall and M. Broden, "Behavior Changes in Brain-Injured Children Through Social Reinforcement," Journal of Experimental Child Psychology, V (1967), 463-479.

²B. S. Parsonson, A. M. Baer, and D. M. Baer, "The Application of Generalized Correct Social Contingencies: An Evaluation of a Training Program," Journal of Applied Behavior Analysis, VII (1974), 427-437.

³R. M. Foxx and N. H. Azrin, "Restitution: A Method of Eliminating Aggressive-Disruptive Behavior of Retarded and Brain Damaged Patients," Behavior Research and Therapy, X (1972), 15-27.

to near-zero levels within one or two weeks and maintained this therapeutic effect with a minimum of staff involvement.

In concurrence with the above, contingent teacher attention was shown to be a powerful reinforcer in a study by Thomas, Becker, and Armstrong¹ in which disruptive classroom behavior was systematically produced and eliminated in a class of twenty-eight well-behaved, middle-primary school students when the instructor varied her use of social reinforcement contingent on appropriate behavior.

Behavior modification in the form of contingent social reinforcement has likewise been used to alter a wide diversity of other aberrant behavior including deviant behavior in a special preschool situation,² increasing positive nonverbal social interactions in a classroom of language-deficient preschoolers,³ and ameliorating discipline problems.⁴ Contingent social reinforcement has also been utilized for reducing underachieving behavior in eight-to-twelve-

¹D. R. Thomas, W. C. Becker, and M. Armstrong, "Production and Elimination of Disruptive Classroom Behavior by Systematically Varying Teacher's Behavior," Journal of Applied Behavior Analysis, I (1968), 35-45.

²T. G. Rowbury, A. M. Baer, and D. M. Baer, "Interactions Between Teacher Guidance and Contingent Access to Play in Developing Pre-Academic Skills of Deviant Preschool Children," Journal of Applied Behavior Analysis, IX (1976), 85-104.

³P. S. Strain, R. E. Shores, and M. M. Kerr, "An Experimental Analysis of 'Spillover' Effects on the Social Interactions of Behaviorally Handicapped Preschool Children," Journal of Applied Behavior Analysis, IX (1976), 31-40.

⁴T. Ayllon and M. D. Roberts, "Eliminating Discipline Problems by Strengthening Academic Performance," Journal of Applied Behavior Analysis, VII (1974), 71-76.

year-olds,¹ developing positive social-emotional behaviors in learning disabled six-to-nine-year olds, decreasing intentional incorrect spelling responses,² and modifying and maintaining smiling behavior of retarded subjects.³

Along with being an effective procedure to change behavior in handicapped and aggressive-disruptive children, contingent social attention has been shown to effectively work with various other behaviors of children. Each age group of children has its own special behavior problems which are amenable to contingent social reinforcement. The next section will deal exclusively with the special problems of preschool and kindergarten children.

Preschool and Kindergarten Children

A series of studies conducted in preschools has demonstrated the effectiveness of contingent teacher attention in changing behavior of problem students. In a study by Allen et al.⁴ behavior was modified for undesirable and inappropriate isolate play of a nursery school child. The investigation

¹B. A. Chadwick and R. C. Day, "Systematic Reinforcement: Academic Performance of Underachieving Students," Journal of Applied Behavior Analysis, IX (1976), 65-78.

²E. H. Zimmerman and J. Zimmerman, "The Alteration of Behavior in a Special Classroom Situation," Journal of the Experimental Analysis of Behavior, V (1962), 59-60.

³B. L. Hopkins, "Effects of Candy and Social Reinforcement, Instructions, and Reinforcement Schedule Learning on the Modification and Maintenance of Smiling," Journal of Applied Behavior Analysis, I (1968), 121-129.

⁴K. E. Allen et al., "Effects of Social Reinforcement on Isolate Behavior of a Nursery School Child," Child Development, XXXV (1964), 511-518.

demonstrated that when adult attention was contingent on the student interacting with peers and not during isolate behavior her rate of peer interaction increased. Similarly, a nursery school child's rate of social contact with peers was increased through teacher attention in research conducted by Buell et al.¹

In a study by Hart et al.² differential teacher attention successfully ceased crying behavior in two preschool males. The teacher was instructed to ignore the boys when they were involved in crying behavior and to attend to them when they did not engage in crying.

Similarly, walking behavior was increased while crawling behavior was collaterally decreased by attending to walking behavior and ignoring crawling of a three-year-old preschooler in an experiment by Harris et al.³

In a study by Pinkston et al.⁴ contingent teacher attention was demonstrated to maintain a reduced rate of peer interaction for a preschool child. The subject in this study was a three-and-a-half-year-old male who attempted to play with other children through apparent indiscriminate attacks upon their

¹J. Buell et al., "Collateral Social Development Accompanying Reinforcement of Outdoor Play in a Preschool Child," Journal of Applied Behavior Analysis, I (1968), 167-173.

²B. M. Hart et al., "Effects of Social Reinforcement on Operant Crying," Journal of Experimental Child Psychology, I, No.2(1964), 145-153.

³F. R. Harris et al., "Effects of Positive Social Reinforcement on Regressed Crawling of a Nursery School Child," Journal of Educational Psychology, LV (1964), 35-41.

⁴E. M. Pinkston et al., "Independent Control of a Preschool Child's Aggression and Peer Interaction by Contingent Teacher Attention," Journal of Applied Behavior Analysis, VI (1973), 115-124.

persons. The research employed utilized two reversal designs within a multiple-baseline design, incorporating both the aggressive and peer interaction behaviors. (A multiple-baseline design is an experimental design in which treatment is implemented at different times to the experimental subject(s). This is done to determine its effect on two or more behaviors of a single subject or on two or more groups of subjects for the same behavior.) The results of this study indicated that the extinction technique was effective in greatly reducing the amount of aggression via contingent teacher attention. This was shown by twice reversing the extinction procedure through the reinforcement procedures, at which time the baseline level of aggressive behavior was again attained.

Hart et al.¹ examined the effect of contingent and non-contingent social reinforcement on the cooperative play of a five-year, four-month-old female preschooler. The authors found that when the student was reinforced contingent on cooperative play there was a significant change for the better, while when she was randomly presented with adult social reinforcement throughout the school day there was no significant change.

In concurrence with the above, other research investigations have shown contingent social reinforcement to be efficaciously utilized to modify

¹B. M. Hart et al., "Effect of Contingent and Non-Contingent Social Reinforcement on the Cooperative Play of a Preschool Child," Journal of Applied Behavior Analysis, I (1968), 73-76.

behavior of preschool age children.¹⁻⁷

Another group in which contingent social reinforcement has proved to be an effective technique is with kindergarten children. At the kindergarten level Schutte and Hopkins⁸ demonstrated that instruction-following behavior could also be increased by contingent teacher attention. The subjects in this

¹D. M. Baer and M. M. Wolf, "The Reinforcement Contingency in Preschool and Remedial Education," Early Education: Current Theory, Research and Practice, eds. R. D. Hess and R. M. Bear (Chicago: Aldine, 1968), pp. 119-129.

²D. M. Baer and J. A. Sherman, "Behavior Modification: Clinical and Educational Applications," Experimental Child Psychology, eds. H. W. Reese and L. P. Lipsitt (New York: Academic Press, 1970), pp. 643-672.

³J. A. Sherman and D. M. Baer, "Appraisal of Operant Techniques with Children and Adults," Assessment and Status of the Behavior Therapies and Associated Developments, ed. C. M. Franks (New York: McGraw-Hill, 1969), pp. 192-219.

⁴M. L. Cooper, C. L. Thomson, and D. M. Baer, "The Experimental Modification of Teacher Attending Behavior," Journal of Applied Behavior Analysis, III (1970), 153-157.

⁵F. R. Harris, M. M. Wolf, and D. M. Baer, "Effects of Adult Social Reinforcement on Child Behavior," Young Children, XX (1964), 8-17.

⁶N. J. Reynolds and T. R. Risley, "The Role of Social and Material Reinforcers in Increasing Talking of a Disadvantaged Preschool Child," Journal of Applied Behavior Analysis, I (1968), 253-262.

⁷T. Sajwaj, S. Twardosz, and M. Burke, "Side Effects of Extinction Procedures in a Remedial Preschool," Journal of Applied Behavior Analysis, V (1972), 163-175.

⁸R. C. Schutte and B. L. Hopkins, "The Effects of Teacher Attention on Following Instructions in a Kindergarten Class," Journal of Applied Behavior Analysis, III (1970), 117-122.

study were five kindergarten girls ages four years, eight months, to six years. Ten simple instructions were given to the class in each of the twenty daily sessions. The teacher alternately employed the baseline and treatment conditions with the results indicating that the consequences of instructed behavior determine the extent to which the instructions are followed. That is, when the teacher provided attention dependent on the children's following the instructions, there was a much higher rate of instruction-following behavior.

Although there is considerable evidence at the preschool level and some at the kindergarten level, probably the largest body of evidence has been gained on elementary students. The next section will explore this research.

Elementary Students

Contingent social reinforcement in the form of teacher attention at the elementary level has likewise shown to be a potent method for increasing target behavior rates in students. Hall, Lund, and Jackson¹ investigated the effects of teacher attention on the study behavior of one first grade and five third grade subjects who had high rates of disruptive or dawdling behavior. During treatment the teachers were instructed to attend to study behavior and ignore non-study behaviors. This resulted in a discernable increase of study rates while a brief return to baseline again produced low rates of study. Reinstatement of teacher reinforcement in the form of attention for study again markedly increased study behavior. An important emphasis in this study was

¹Hall, Lund, and Jackson, loc. cit.

that these procedures did not interfere with regular teaching duties as the teacher had more time for actual instruction because the disruptive behaviors in the classroom subsided.

Similarly, Broden et al.¹ showed that teacher attention could be used effectively to modify disruptive and inappropriate behavior of two second grade boys at adjacent desks who were described as the most disruptive pupils in their classroom. During the first treatment phase the first subject was systematically reinforced with teacher attention contingent on appropriate attending behavior. This resulted in a sharply increased rate of his attending behavior and a small increased rate of attending behavior on the second subject. The second phase was implemented with systematic attention supplied by the teacher for only the second subject and not the first. This further increased the second subject's attending behavior but reduced the first subject's attending level. Reversal was induced and both subjects decreased in attending behavior. The last experimental condition offered reinforcement in the form of teacher attention for attending behavior for each of the subjects and resulted in dramatic increases in attending behavior for both boys.

In concurrence with the above Hasazi and Hasazi² found that contingent teacher attention for correct responses is a powerful reinforcer for student behavior change. The authors experimentally manipulated teacher

¹M. Broden et al., "Effects of Teacher Attention on Attending Behavior of Two Boys at Adjacent Desks," Journal of Applied Behavior Analysis, III (1970), 199-203.

²Hasazi and Hasazi, loc. cit.

attention to modify digit-reversal behavior in an elementary child. The eight-year-old boy would almost always reverse the order of digits in the sum, e.g. writing twenty-one as the sum of five plus seven. The findings of this study demonstrated that when the teacher attended to correct responses rather than giving "extra help" for incorrect responses, there was a dramatic decrease in the rate of reversals. The baseline condition was replicated and the subject again returned to reversal behavior. When treatment was reinstated reversal behavior diminished sharply. The results of this study indicate clearly that the digit-ordering behavior was under the control of the teacher's discriminative attending behavior.

In order to discuss the effects of contingent social attention on all school age pupils, the next section of this literature review will describe the research with secondary students.

Secondary Students

Problem behaviors have also been modified at the secondary level by contingent teacher verbal praise and attention in a study by McAllister et al.¹ The authors studied the effects of teacher praise and disapproval on two target behaviors of inappropriate talking and turning around in an English class of twenty-five juniors and seniors. The results of this study clearly demonstrated that the combination of teacher disapproval for the two target behaviors

¹L. W. McAllister et al., "The Application of Operant Conditioning Techniques in a Secondary School Classroom," Journal of Applied Behavior Analysis, II (1969), 277-285.

and teacher praise for appropriate incompatible behaviors markedly decreased the incidence of target behaviors in the experimental class. A control class of twenty-six pupils which was observed and taught by the same instructor indicated no substantial change throughout the same time span.

Broden et al.¹ studied the relationship between teacher attending behavior and a token reinforcement system on the disruptive behavior of thirteen seventh and eighth grade students enrolled in a special education class. During the baseline condition individual and group levels were recorded. The experimental conditions, which induced contingent teacher attention and/or token reinforcement, increased study behavior while concurrently decreasing disruptive behavior. When reinforcement was withdrawn and reversal was obtained study rates decreased. When the contingencies were again reinstated study levels increased.

The studies so far presented have demonstrated the effectiveness of contingent social attention on increasing the rate of desirable student behavior. In the next section studies will be reviewed which examine various procedures for training teachers to use this contingent social reinforcement. From here on the wording "contingent teacher attention" will be used interchangeably with the wording "contingent social reinforcement."

¹M. Broden et al., "Effects of Teacher Attention and a Token Reinforcement System in a Junior High School Special Education Class," Exceptional Children, XXXVI (1970), 341-349.

Training Teachers

The preceding review of studies has established the effectiveness of contingent teacher attention. This section will present research investigations which have trained teachers in the classroom to implement contingent teacher attention in order to modify student behavior.

In an experiment by Madsen, Becker, and Thomas¹ two elementary school teachers had their behavior systematically varied to discern the effects on classroom behavior of rules, ignoring inappropriate behaviors and showing approval for appropriate behavior. This research was

. . . aimed at demonstrating what the teacher can do to achieve a 'happier,' more effective classroom through the systematic use of learning principles. The study grows out of a body of laboratory and field research demonstrating the importance of social reinforcers (smiles, praise, contact, nearness, attention) in establishing and maintaining effective behaviors in children.²

The study used outside observers to record the behavior of two second grade students in one class and one kindergarten student in another class and the behavior of the pupils' respective teachers. The treatment conditions were implemented one at a time after baseline was established. The results indicated that rules by themselves were relatively ineffective in controlling inappropriate classroom behavior, but ignoring of inappropriate classroom behavior and simultaneously attending to appropriate classroom behavior were very successful in obtaining appropriate behavior. The teacher behavior most

¹Madsen, Becker, and Thomas, loc. cit.

²Ibid., p. 139.

responsible for the dramatic change in the students' behavior was contingent teacher attention. This teacher behavior was relatively easily trained by the use of trained experimenters who conducted a workshop on applying behavioral principles in the classroom and by the trained experimenters observing and working with the teacher in the classroom.

This study utilized a training workshop for the teachers on applying behavioral principles in addition to monitoring the teachers in the classroom. In the next investigation the authors sought to train the teachers to apply contingent teacher attention by not giving them any specific training in reinforcement principles but rather by giving both teachers direct feedback on their rate of attending to appropriate student behavior in the classroom.

Cooper, Thomson, and Baer¹ used a consistent training procedure to modify preschool teachers to selectively attend to appropriate child responses. The project was undertaken in two Head Start programs which each contained fifteen children, one teacher, and one aide. After a baseline period, treatment amounted to feedback in the form of definitions of appropriate pupil responses, discussion of the frequency of attending to appropriate pupil responses, disclosure of percentage of attending to appropriate pupil responses, and discussion of the teachers' frequency of not attending to appropriate pupil responses. The results of the experiment demonstrated that both teachers learned to use contingent teacher attention and substantially increased their

¹Cooper, Thomson, and Baer, loc. cit.

attending behavior to children engaged in appropriate behavior. This was done without any formal training in reinforcement principles.

The foregoing studies demonstrated how experienced teachers could be trained to use contingent teacher attention. In a study by Hall et al.¹ three beginning teachers who were experiencing difficulty with classroom control were trained to reinforce study behavior and ignore non-study behavior. This treatment resulted in substantial increases in study behavior and suppressed rates of disruptive behavior. Reintroduction of the baseline condition resulted in the previously low rates of study while reinstatement of the treatment contingencies again resulted in substantial increases in desirable student behavior. The result of this investigation demonstrated that beginning teachers at the first, sixth, and seventh grade levels who were having difficulties with classroom control could be effectively taught to use contingent reinforcement with relative ease. This was remarkable, as other forms of intervention had been largely unsuccessful.

Although the previous studies have experimentally shown that systematic teacher attention can be an effective technique to improve classroom behavior, all of them have required outside experimenters and observers to manage the research and record the target behaviors.

¹R. V. Hall et al., "Instructing Beginning Teachers in Reinforcement Procedures which Improve Classroom Control," Journal of Applied Behavior Analysis, I (1968), 315-322.

In an investigation by Hall et al.¹ formal instruction in classroom management procedures resulted in the teachers using contingent social reinforcement and implementing the research with themselves as observers and experimenters. The research was done on disputing and talking out behaviors in the following situations: individual students and entire classrooms, in special education classrooms and regular classrooms, in areas ranging from white middle class to black poverty, and from grades one to junior high. The results illustrated that reliable experiments using contingent teacher attention could be adequately carried out by teachers in many different settings using resources already existing in their schools.

In concurrence with the above, other studies have clearly indicated that contingent teacher attention can be a rapid and effective means for inducing and maintaining desirable classroom behavior and that teachers can be readily trained to use systematic reinforcement techniques in the classroom.²⁻⁵

¹R. V. Hall et al., "The Teacher as Observer and Experimenter in the Modification of Disputing and Talking-Out Behaviors," Journal of Applied Behavior Analysis, IV (1971), 141-149.

²Hall, Lund, and Jackson, loc. cit.

³Parsonson, Baer, and Baer, loc. cit.

⁴Pinkston et al., loc. cit.

⁵V. M. J. Ringer, "The Use of a 'Token Helper' in the Management of Classroom Behavior Problems and in Teacher Training," Journal of Applied Behavior Analysis, VI (1973), 671-677.

The Principal's Role in Applying Reinforcement Techniques

The preceding section discussed the effectiveness of contingent teacher attention on the classroom behavior of students and also outlined various methods to train teachers to use contingent teacher attention in the classroom. The techniques described illustrated the powerful effect contingent social reinforcement had on student behaviors when appropriately applied by trained teachers. This final section will present research studies in which the principal is directly responsible for behavioral programs and is involved in the process of training teachers to implement these potent behavioral methods in the classroom.

A series of recent investigations follow which demonstrate that the school principal can systematically implement contingent social reinforcement and behavior modification programs directly with students and can effectively train teachers to engage in contingent teacher attention in the classroom.

In a study by Brown, Copeland, and Hall¹ an elementary school principal successfully modified the behavior of a second grade student displaying frequent absenteeism and tardiness, four fourth graders exhibiting high rates of absenteeism, and a third grader with extensive disruptive behavior. In each of the three experiments the principal directly modified the undesirable behavior by directly delivering the reinforcers related to the behavioral

¹Brown, Copeland, and Hall, "The School Principal."

technique being utilized. The results of the study demonstrated that a school principal can substantially alter undesirable student behaviors by contingent praise, play, and free time activity.

Brown, Copeland, and Hall¹ likewise had an elementary school principal systematically apply reinforcement and shaping procedures to suppress the phobic behavior of an eleven-year-old sixth grader who had chronic absenteeism due to his intense fear of the classroom. Treatment amounted to systematically reinforcing the subject with points as he successfully completed approximations to the target behavior of remaining in the classroom. The points were traded in for social reinforcement in the form of attending a football game with his mother. The study is important because it demonstrated that a behavioral technique utilizing contingent social reinforcement could be implemented by a school principal within the regular school setting without assistance from itinerant personnel.

In another study in which the school principal directly initiated social reinforcement techniques, Brown² examined the effects of differing reinforcement techniques on the learning of multiplication facts by inner city third, fourth, fifth, and sixth grade students. This experiment differs from the preceding investigations in that it attempts to increase academic responding rather than ameliorate unadaptive or inappropriate behavior. This study also

¹Brown, Copeland, and Hall, "School Phobia."

²Brown, loc. cit.

differs in that it was comprised of four hundred and fifty-three subjects in the experimental group and one thousand seventy-three subjects in the control group, compared to the preceding investigations which focused on only a small number of subjects. The result of this study demonstrated that a principal could effectively use contingent reinforcement techniques with a large number of subjects. Although this principal-applied reinforcement was for academic responding, it has implications for experiments with various other classroom behaviors.

In an investigation by Copeland et al.¹ an elementary school principal used contingent social attention in the form of praising parents for sending their children to school. The subjects in the study were nine elementary school students who were attending a remedial summer school program. Five of the students were in the experimental group in which the principal applied contingent social reinforcement by calling and praising their parents when they were in school and also discussing the students' progress in school. Also, for these same five students, the principal would systematically ignore the five sets of parents when their children were not in school. The control group was made up of four students for which the principal called home only twice for the purpose of urging the parents to send their children to school. The results of this study demonstrated that contingent social attention supplied by the principal to parents in the experimental group was far superior to the

¹Copeland et al., loc. cit.

traditional urging, as in the control group. The strategy of attending in a positive way to appropriate behavior and ignoring inappropriate behavior again demonstrated the power of contingent social attention.

This research was unique in that a school principal was involved and because the effect of the principal's praise was not measured by observing the behavior of the recipient of the praise, but by observing the behavior of the recipients' children.¹

In research conducted by Copeland, Brown, and Hall² an elementary principal increased attendance and academic performance of elementary school children through contingent attention. In the first experiment, the principal delivered direct contingent attention to three chronically absent children when they attended school by entering their classroom and praising them for coming to school. In the second experiment, the principal praised three low-achieving students contingent upon their meeting specified academic standards. In the third experiment, the principal entered the third grade room and praised those students who were improving and those who were achieving the highest. The studies utilized a multiple baseline design which demonstrated that it was the principal's direct contingent social attention which was responsible for the change in student behavior. The results of all three investigations illustrated that contingent social reinforcement is a powerful technique.

So far this section has shown that various forms of contingent social reinforcement can be effectively applied by the school principal directly to

¹Ibid.

²Copeland, Brown, and Hall, loc. cit.

students. In the following two studies this will be expanded to demonstrate how the principal can implement reinforcement techniques to train teachers to engage in contingent teacher attention in order to modify unwanted student behavior.

Cossairt, Hall, and Hopkins¹ systematically used instructions, feedback, and contingent praise by an elementary school principal to increase teacher praise and positive feedback, for student attending and instruction-following behavior. The three experimental conditions were presented in a multiple baseline design to the first two of the three teachers. The experimental conditions of instructions alone and feedback alone demonstrated inconclusive results, while the experimental condition of feedback plus social praise resulted in an increase of contingent teacher attention for student attending behavior. All three conditions of instructions, feedback, and feedback and social praise were presented to the third teacher in a single experimental condition. This also substantially increased the teachers' contingent attention to attending students. Each of the experimental conditions contained four target students. The results of this investigation demonstrated that a principal could effectively implement reinforcement techniques to train teachers to engage in contingent teacher attention in the classroom.

In concurrence with the above, Cossairt² utilized a "supervision package" of instructions, modeling, feedback, and contingent praise applied

¹Cossairt, Hall, and Hopkins, loc. cit.

²Cossairt, loc. cit.

in a multiple baseline design. The author used four teachers, who each in turn selected four target students for a total of sixteen students. This principal implemented "supervision package" and the simultaneous increased rate of contingent teacher attention produced a substantial increase in student attending behavior.

Chapter 3

RESEARCH DESIGN AND METHODOLOGY

PURPOSE

The purpose of this research was to investigate the effects of an elementary school principal's cueing technique on the rate of positive and negative teacher verbalizations, and measure the effect that this verbalization change had on the total number of students involved in on-task behavior. The research paradigm employed was the multiple-baseline research technique as described by Baer, Wolf, and Risley¹ and as exemplified in Cossairt, Hall, and Hopkins² among others. The multiple-baseline technique was utilized because it has demonstrated the power of the experimental treatment condition over the target behavior(s) to be modified³ and because it has been found to be one of the most appropriate and acceptable approaches to modify behavior in the classroom.⁴

¹Baer, Wolf, and Risley, loc. cit.

²Cossairt, Hall, and Hopkins, loc. cit.

³A. E. Kazdin, "Methodological and Assessment Considerations in Evaluating Reinforcement Programs in Applied Settings," Journal of Applied Behavior Analysis, VI (1973), 517-531.

⁴McAllister, et al., loc. cit.

Setting of the Study

This study was conducted in two adjoining second grade classrooms in a rural elementary school in mid-Iowa. The classrooms were organized with all the desks facing the same direction to allow for easy visibility of the teacher during academic activities and to allow the primary observer or school principal to enter the rear of the room unnoticed. This environment made it possible for the observer(s) to enter, record, cue, and leave the classroom without disturbing the ongoing activities.

Subjects of the Study

Principal

The primary observer and experimenter in this study was the elementary school principal. The principal was approximately thirty-three years of age, had had nine years of experience as an elementary administrator, held a specialist degree in school administration, was male, and was well accustomed to making classroom observations. The principal was also a resident of the rural community in which this school was located, was white, and of the same ethnic background as the other subjects of this study. The two teachers described the principal as well liked by students, school staff, and community; very personable; and as demonstrating highly developed interpersonal skills. Since the students were familiar with the principal frequently observing in the classroom, the teachers reported little change in student behavior as a reaction to the presence of the principal.

This particular principal was selected because of his very positive approach to people, his desire to improve the learning environment in his school, and his desire to assist teachers to become more positive in their verbal interactions in the classroom. Although the principal had had minimal exposure to applied behavior analysis techniques, it took a relatively short amount of time (approximately two hours) for the school psychologist to explain the experimental procedure to him.

Teachers

The two second grade teachers who volunteered to participate in this research study, hereinafter referred to as Teacher A and Teacher B, were both in their mid-twenties, were female, and held bachelor's degrees in elementary education. The teachers were both white, of the same ethnic background as their students, lived in the rural community in which they taught, and had worked well together for four years. Teacher A had had five years teaching experience at the elementary level in this school system. Teacher B had had seven years teaching experience at the elementary level, also in this same school system. According to the principal, the teachers both maintained good classroom control, created a nurturing atmosphere, and were respected members of the school teaching staff.

The teachers were asked to participate in this investigation because prior observation had shown that they already displayed some positive verbal interactions in the classroom, were not threatened by classroom observers and suggestions, and had both indicated a desire to be involved in a research

project.

In preliminary discussion with the principal the teachers were told that one or two observers would come regularly to their classrooms to record data which would be shown and explained to them at a later date. They were also told that "the primary observer would be the school principal, the secondary observer would be the school psychologist, and that both observers would be interested in the teachers' verbalizations with their respective students." The teachers were asked not to discuss the experiment through its entirety with each other or any other school staff.

Students

The subjects in Teacher A's classroom, hereinafter referred to as Classroom A, were twenty-four second graders (twelve males and twelve females) whose ages at the beginning of the study ranged from seven years, seven months, to eight years, eleven months.

The subjects in Teacher B's classroom, hereinafter referred to as Classroom B, were twenty-three second graders (thirteen males and ten females) whose ages at the beginning of the study ranged from seven years, six months, to eight years, ten months.

The students in both classrooms were white and lived in the surrounding rural area with approximately half of each classroom living on a farm. No standardized group intelligence test data were available on these students as group intelligence tests are not administered below the third grade in this school system. However, a perusal of each student's cumulative file,

including the Metropolitan Readiness Test, indicated no students performing low enough to require further individualized testing. The Metropolitan Readiness Test is administered at the end of the kindergarten year and is a good predictor of later academic achievement and reading readiness. Other information gleaned from the cumulative file consisted of anecdotal records, report cards, and work samples. Again no significantly low performances were noted.

The teachers reported that no students were more than one year below their grade expectancy in any subject areas and no students had behavior problems so severe as to require school psychological assistance.

Observation and Recording

During observation the principal recorded in the two classrooms for fifteen minutes per session during the exact time period each observation day. The principal sat at the rear of the classroom and avoided eye contact or any other interactions with the classroom members. Maintaining a position at the rear of the room allowed the principal to observe the teacher and the children in an inconspicuous manner. These observations were conducted at consistent times to promote continuity and because the teacher-student verbal interactions were maximal in these selected settings.

The principal as primary observer-experimenter was equipped with a stopwatch attached to a clipboard upon which was mounted the recording forms (see Appendix I) and the behavioral definitions of positive teacher

verbalizations, negative teacher verbalizations, neutral teacher verbalizations, and on-task behavior (see BEHAVIORS MEASURED below). To record an observation the principal made a check mark under the appropriate column denoting the type of verbalization (i.e. positive teacher verbalization, negative teacher verbalization, or neutral teacher verbalization) made by the teacher to a specific individual or group of students. Additionally, for fifteen continuous minutes, the stopwatch was utilized by the principal to time sample and record the number of students on-task at the end of each sixty seconds.

The school psychologist, as secondary observer, was equipped with the same paraphernalia and instructions as the primary observer but observed for the purposes of reliability checks once during each of the baseline, treatment one, treatment two, and reversal conditions only.

Behaviors Measured

This investigation sought to define, record, and modify verbal behavior of the two teachers only and did not attempt to take into account teacher demeanor in any manner. Demeanor was considered too complex a task to behaviorally define for this experiment.

The following definitions of terms were used to record these verbal behaviors of the two teachers and also the on-task behavior of the students:

Positive teacher verbalizations were defined as any verbalization from the teacher directed toward a student or group of students for the purpose of continuing an ongoing behavior and/or showing approval following the

student(s) response (e.g. "I like the way you are doing your math;" "Bob, thank you for being so quiet.").

Negative teacher verbalizations were defined as any verbalization from the teacher directed toward a student or group of students for the purpose of ceasing an ongoing behavior and/or showing disapproval following the student(s) response (e.g. "We don't talk like that, Tom;" "Sally, stop that."). Also included in this category were verbal reprimands for not following the teacher's instructions (e.g. "You didn't go outside like I asked, did you?").

Neutral teacher verbalizations were defined as any verbalization from the teacher directed toward a student or group of students which was:

- (a) neither for the purpose of showing approval or disapproval of a student(s) response (e.g. "Please;" "Thank you."). (Careful consideration was given to the teacher's intent or purpose for the verbalization.);
- (b) an academic description of a student(s) behavior. This could be instructional and/or informative (e.g. "Do problems one to five on page 32;" "Could I see your work?");
- (c) necessary to promote a safe and healthy environment (e.g. "Please don't play with the broken glass;" "We don't hit each other.").

On-task behavior was defined as one or more of the following if, in fact, it was the task assigned or requested by the teacher:

- (a) reading--defined as the student's eyes fixated on his/her assigned reading material;

- (b) writing--defined as the student utilizing a writing instrument to make a mark on his/her assigned work;
- (c) listening--defined as attending to the instructor or another responding student (i.e. looking toward the teacher when she was speaking);
- (d) sharing--defined as the student verbally responding to questions from the teacher or asking task-related questions of the teacher;
- (e) participating--defined as taking part in specifically assigned classroom games and/or activities. On-task student behavior did not include such things as sharpening pencils, throwing away paper, etc. These may have been necessarily related tasks but did not reflect tasks directly requested by the teacher.

Experimental Conditions

In order to analyze the efficacy of the treatment procedures, that is to determine whether the change in student attending behavior was due to the change in teacher verbal interactions, a multiple baseline design was employed. This multiple baseline design for the two teachers involved four sequential conditions consisting of: Condition I (baseline periods of differing length), Condition II (treatment one), Condition III (treatment two), and Condition IV (reversal).

Before the experiment was initiated the principal asked each of the teachers to conduct her class in normal fashion and to ignore the observer.

The principal further requested that the teachers not comment on the presence of the observer to the students unless absolutely necessary. In such cases the teachers were instructed to tell the students only that the principal would be visiting on various occasions and that the students should try to ignore him.

Also, prior to beginning the observational scoring, the principal as primary observer and the school psychologist as secondary observer memorized the students' names and seating arrangements. This ensured that the observer(s) would be in a position to instantly record the proper data.

Condition I (baseline): Prior to implementing the treatment strategies a baseline rate was taken for the number of positive teacher verbalizations, negative teacher verbalizations, neutral teacher verbalizations, and the number of students on-task in each of the two classrooms. This baseline was recorded for four consecutive days with Teacher A and for nine consecutive days with Teacher B (following the multiple-baseline design). There was minimal interaction between the principal and the respective classroom teachers during the baseline condition. The principal simply made a written record of each teacher's verbalizations and the number of students on-task once every sixty seconds; otherwise he just observed the class.

Condition II (treatment one): Following baseline the principal discussed with the teachers individually the fundamentals of contingent teacher attention and presented each with a copy of definitions for positive teacher verbalizations, negative teacher verbalizations, and neutral teacher verbalizations. No mention was made of recording on-task student behavior until

the study was completed because the experimenters feared that knowledge of measuring on-task student behavior by the teachers might affect their verbalizations with students. The principal also informed each teacher that every time he observed her involved in a negative verbalization he would cue (signal with a cough) her to immediately find four students engaged in appropriate school work and praise each child individually (positive teacher verbalizations). After praising the fourth student, the teacher was instructed to continue with what she was doing prior to the negative verbalization. Treatment one was continued for five consecutive days for each teacher. Whenever a teacher questioned a cue during a class period, the principal waited until after the class to discuss that one cue separately with her, but was careful not to divulge any more than necessary about the experiment.

Condition III (treatment two): Experimental condition two immediately followed experimental condition one with the only difference being that the principal was in the respective class room twice a week for a duration of three weeks rather than every day for five consecutive days. The principal also cued during treatment two.

Condition IV (reversal): Immediately following treatment two the principal returned to the baseline condition and discontinued cueing. The principal recorded positive teacher verbalizations, negative teacher verbalizations, neutral teacher verbalizations, and the number of students involved in on-task behavior in each of the two classrooms for five consecutive days.

Reliability

To assess the extent to which the data was reliably recorded by the principal's observations, interobserver agreement was analyzed by having the second observer periodically make a simultaneous observation record. This independent observation by the secondary observer (school psychologist) was made once during each of the experimental conditions of Condition I (baseline), Condition II (treatment one), Condition III (treatment two), and Condition IV (reversal).

The interobserver agreement for positive teacher verbalizations was calculated by dividing the smaller number of total positive verbalizations (of one of the observers) by the larger number of total positive verbalizations (of the other observer), multiplied by one hundred. This was calculated separately for each classroom and follows the procedures for calculating event-recording reliability as reported by Kelly.¹ The resulting percentage represents the agreement of the frequency of recordings, although the actual events may have been different. In other words, a high reliability score indicates that the two observers recording at the same time would have obtained approximately the same frequencies (which is the principle dependent measure in this study). This same procedure of assessing reliability was also utilized for calculating interobserver agreement of negative and neutral teacher verbalizations for

¹M. B. Kelly, "A Review of the Observational Data-Collection and Reliability Procedures Reported in the Journal of Applied Behavior Analysis," Journal of Applied Behavior Analysis, X (1977), 97-101.

each classroom.

To assess the reliability for student on-task behavior, the percentage was calculated by dividing the number of intervals in which the two observers agreed by the total number of intervals in which observations were made, multiplied by one hundred. This was calculated separately for each classroom and follows the procedures for calculating time-sampling reliability as reported by Kelly.¹ The percentages of interobserver agreement for positive, negative, and neutral teacher verbalizations as well as on-task student behavior are reported for Classrooms A and B in Table 1 and 2, respectively, as follows:

Table 1
Percentage of Interobserver Agreement in Classroom A

Condition	Positive Verbalization	Negative Verbalization	Neutral Verbalization	On-Task Behavior
1. Baseline	100	80	97	87
2. Treatment One	93	100	100	80
3. Treatment Two	90	100	99	87
4. Reversal	93	66	99	73

¹Ibid.

Table 2

Percentage of Interobserver Agreement in Classroom B

Condition	Positive Verbalization	Negative Verbalization	Neutral Verbalization	On-Task Behavior
1. Baseline	86	71	99	87
2. Treatment One	92	100	96	87
3. Treatment Two	91	100	99	80
4. Reversal	100	100	99	87

Chapter 4

FINDINGS

INTRODUCTION

The results of this study are reported below by classroom and condition. As such the data collected on positive and negative teacher verbalizations will be presented first for Classroom A in each condition, Classroom B in each condition, and finally for Classrooms A and B combined in all conditions.

This will be followed by the presentation of the number of students on-task in Classroom A in all conditions, Classroom B in all conditions, and for Classrooms A and B combined in all conditions. The data will be presented graphically in Figures 1-9.

Next the neutral teacher verbalizations for Classrooms A and B combined will be presented.

And finally, the remainder of this chapter will discuss the findings as they relate to the directional hypothesis.

Teacher Positive and Negative Verbalizations

Classroom A

Condition I (baseline): A baseline rate was recorded for the number of positive teacher verbalizations, negative teacher verbalizations, neutral teacher verbalizations, and the number of students on-task in Classroom A (see Appendix I for a sample of the written record). This baseline was

recorded for four consecutive school days by the school principal.

The data in Figure 1 presents the number of teacher positive and negative verbalizations for this baseline condition of four days. The range and mean scores for the baseline condition in Classroom A are as follows:

<u>Verbalization</u>	<u>Range</u>	<u>Mean</u>
Positive	1 - 8	5.50
Negative	1 - 15	11.75

Condition II (treatment one): In this condition the principal continued to record positive, negative, and neutral teacher verbalizations as well as the number of students on-task each sixty seconds. In addition, before initiating condition II the principal discussed with Teacher A the fundamentals of contingent teacher attention and presented her with a sheet of paper containing the definitions of positive teacher verbalizations, negative teacher verbalizations, and neutral teacher verbalizations. The principal also informed the teacher of the cueing technique he would employ whenever she emitted a negative verbalization and gave her instructions to find four students engaged in appropriate behavior when cued. This experimental condition was applied for five consecutive school days.

The data in Figure 1 presents the number of teacher positive and negative verbalizations for condition II (treatment one). The range and mean scores for treatment one in Classroom A are as follows:

<u>Verbalization</u>	<u>Range</u>	<u>Mean</u>
Positive	8 - 15	12.60
Negative	1 - 6	2.60

CLASSROOM A

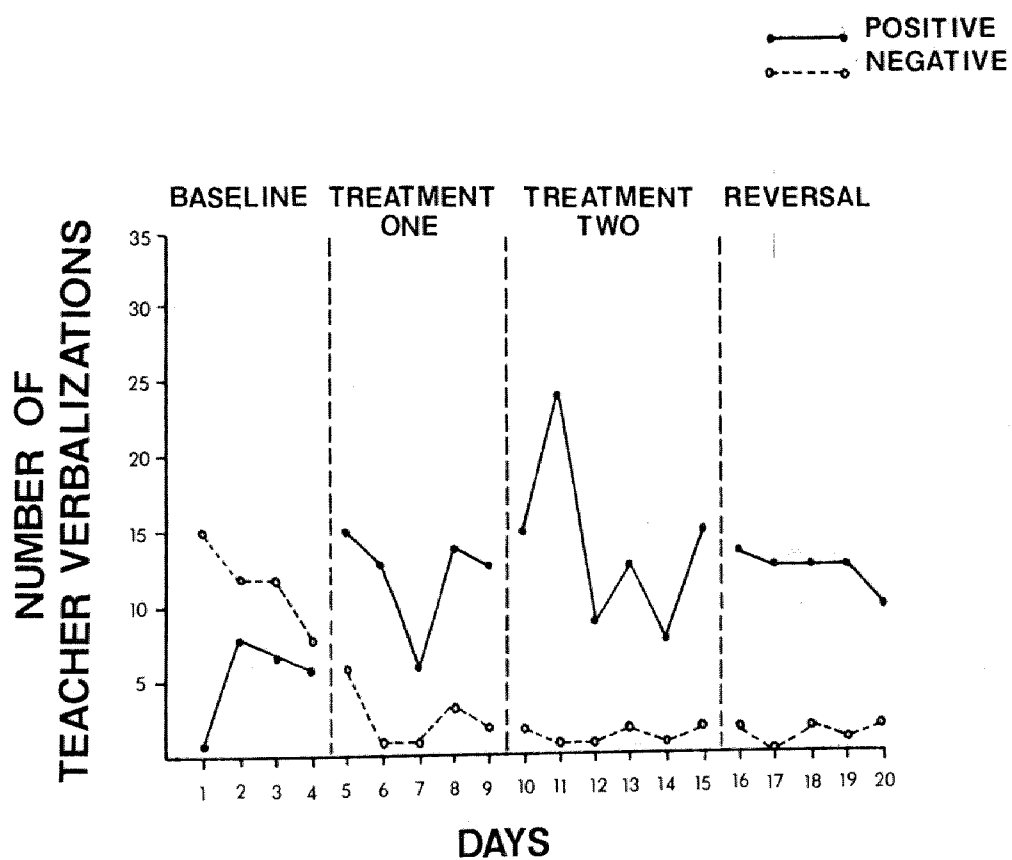


Figure 1

Number of Teacher Positive and Negative
Verbalizations for Classroom A
in Conditions I, II, III, and IV

Condition III (treatment two): In this condition the principal continued to record positive, negative, and neutral teacher verbalizations, the number of students involved in on-task behavior, and cued Teacher A when appropriate. This condition differed from the previous experimental condition in that the principal was in the classroom twice a week for a duration of three weeks rather than every day for five consecutive days. This condition was employed to discern if applying treatment twice a week was substantial enough to continue systematic behavior change in teacher and student behavior with a reduced amount of principal contact time.

The data in Figure 1 presents the number of teacher positive and negative verbalizations for condition III (treatment two). The range and mean scores for treatment two in Classroom A are as follows:

<u>Verbalization</u>	<u>Range</u>	<u>Mean</u>
Positive	8 - 24	14.00
Negative	1 - 2	1.50

Condition IV (reversal): In this condition the principal continued to record positive, negative, and neutral teacher verbalizations and the number of students involved in on-task behavior. However, the principal discontinued to cue Teacher A when she emitted a negative verbalization. This reversal condition was induced to allow the experimenters to compare the pre- and post-treatment data on the rate of positive teacher verbalizations, negative teacher verbalizations, neutral teacher verbalizations, and the number of students on-task each sixty seconds. This condition was applied for five consecutive school days.

The data in Figure 1 presents the number of teacher positive and negative verbalizations for condition IV (reversal). The range and mean scores for the reversal condition in Classroom A are as follows:

<u>Verbalization</u>	<u>Range</u>	<u>Mean</u>
Positive	10 - 14	12.60
Negative	0 - 2	1.40

The data in Figure 2 presents the mean number of teacher positive and negative verbalizations for conditions I, II, III, and IV for Classroom A.

Classroom B

Condition I (baseline): In order to analyze the efficiency of the treatment procedure, a multiple-baseline design was implemented. Therefore, the baseline for Classroom B was recorded for nine consecutive school days, as compared to four consecutive school days for Classroom A. The school principal applied the same procedures of recording the number of positive teacher verbalizations, negative teacher verbalizations, neutral verbalizations, and the number of students on-task for Classroom B as for Classroom A.

The data in Figure 3 presents the number of teacher positive and negative verbalizations for this baseline condition of nine days. The range and mean scores for the baseline condition in Classroom B are as follows:

<u>Verbalization</u>	<u>Range</u>	<u>Mean</u>
Positive	4 - 7	5.67
Negative	7 - 9	8.00

Condition II (treatment one): In this condition, the principal applied

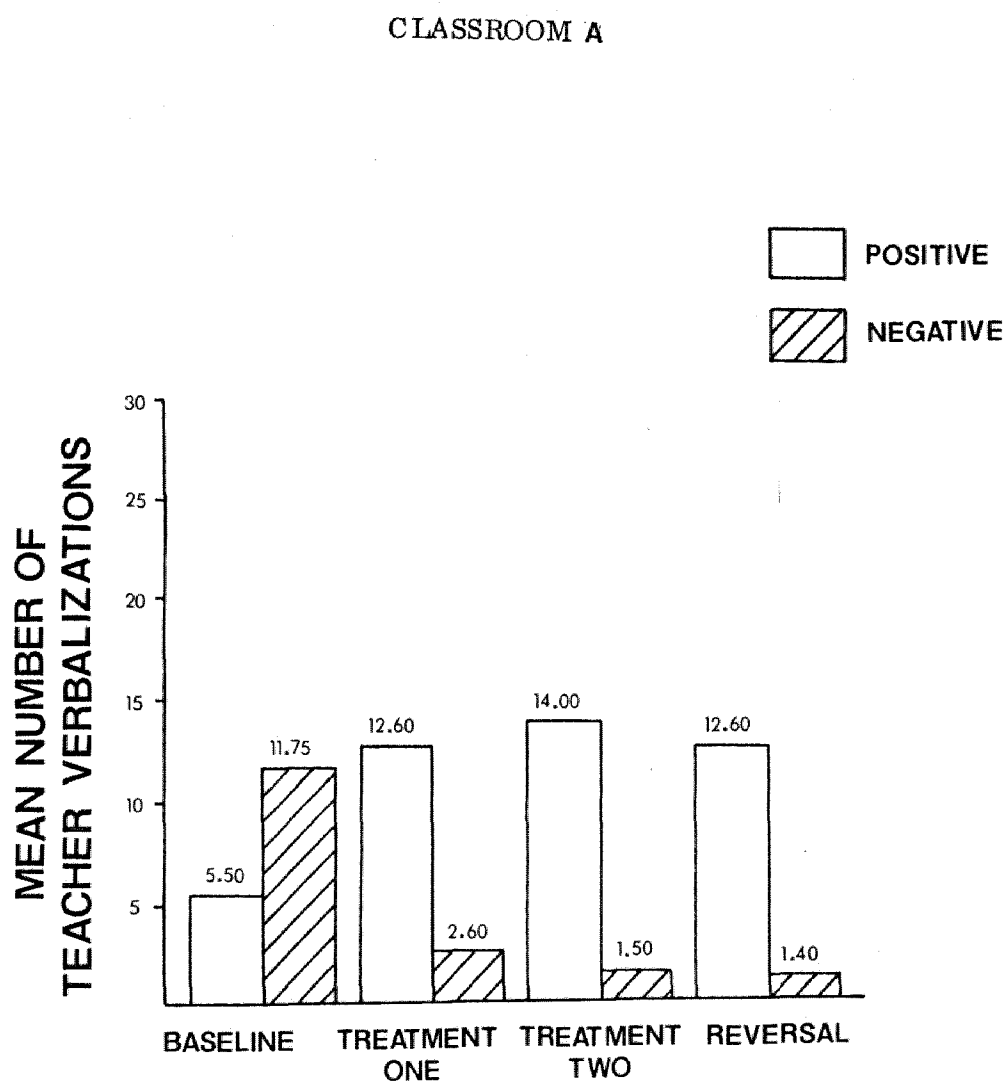


Figure 2

Mean Number of Positive and Negative
Verbalizations for Classroom A
in Conditions I, II, III, and IV

CLASSROOM B

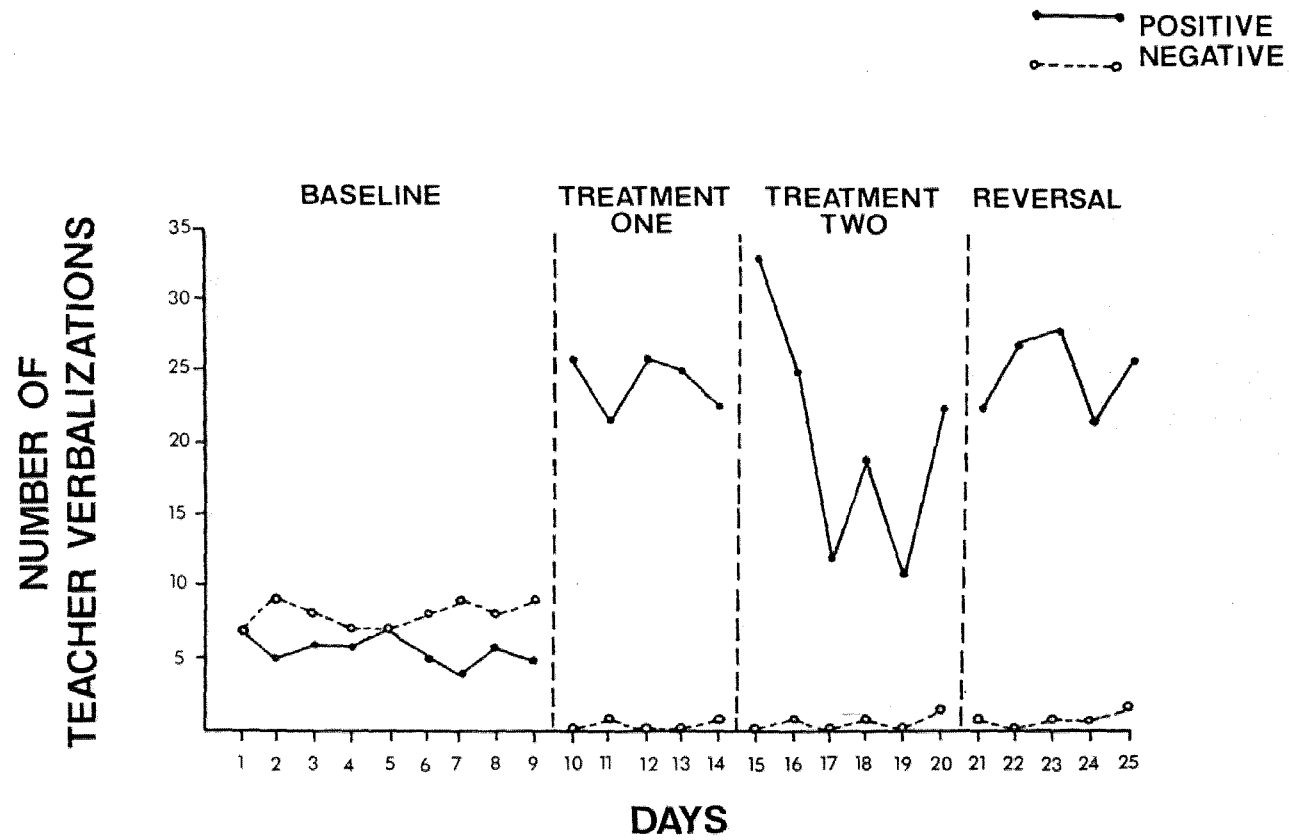


Figure 3

Number of Teacher Positive and Negative Verbalizations
for Classroom B in Conditions I, II, III, and IV

the same treatment strategies to Classroom B as had been applied to Classroom A condition II (treatment one). For Classroom B this experimental condition was also applied for five consecutive school days.

The data in Figure 3 present the number of teacher positive and negative verbalizations for condition II (treatment one). The range and mean scores for treatment one in Classroom B are as follows:

<u>Verbalization</u>	<u>Range</u>	<u>Mean</u>
Positive	22 - 26	24.40
Negative	0 - 1	.40

Condition III (treatment two): In this condition the principal applied the same treatment strategies to Classroom B as had been applied to Classroom A condition III (treatment two). For Classroom B this experimental condition was also applied twice a week for a duration of three weeks.

The data in Figure 3 present the number of teacher positive and negative verbalizations for condition III (treatment two). The range and mean scores for treatment two in Classroom B are as follows:

<u>Verbalization</u>	<u>Range</u>	<u>Mean</u>
Positive	11 - 33	20.50
Negative	0 - 2	.67

Condition IV (reversal): In this condition the principal returned to the baseline condition for Classroom B just as had been done for Classroom A condition IV (reversal). For Classroom B this condition was also applied for five consecutive school days.

The data in Figure 3 present the number of teacher positive and

negative verbalizations for condition IV (reversal). The range and mean scores for the reversal condition in Classroom B are as follows:

<u>Verbalization</u>	<u>Range</u>	<u>Mean</u>
Positive	22 - 28	25.20
Negative	0 - 2	1.00

The data in Figure 4 present the mean number of teacher positive and negative verbalizations for conditions I, II, III, and IV for Classroom B.

Classrooms A and B Combined

Figure 5 graphically summarizes the data so far presented on positive and negative teacher verbalizations for Classrooms A and B. This graphically demonstrates the multiple baseline design implemented in this experiment and clearly portrays the power of the treatment procedure to increase positive teacher verbalizations and decrease negative teacher verbalizations. This will be discussed at length later in this chapter.

This study was designed to change the rate of positive and negative teacher verbalizations and measure the effects that this verbalization change had on the total number of students involved in on-task behavior in the classroom. The following presents the changes measured in on-task student behavior.

NUMBER OF STUDENTS ON-TASK

Classroom A

Data were collected for the number of students on-task during

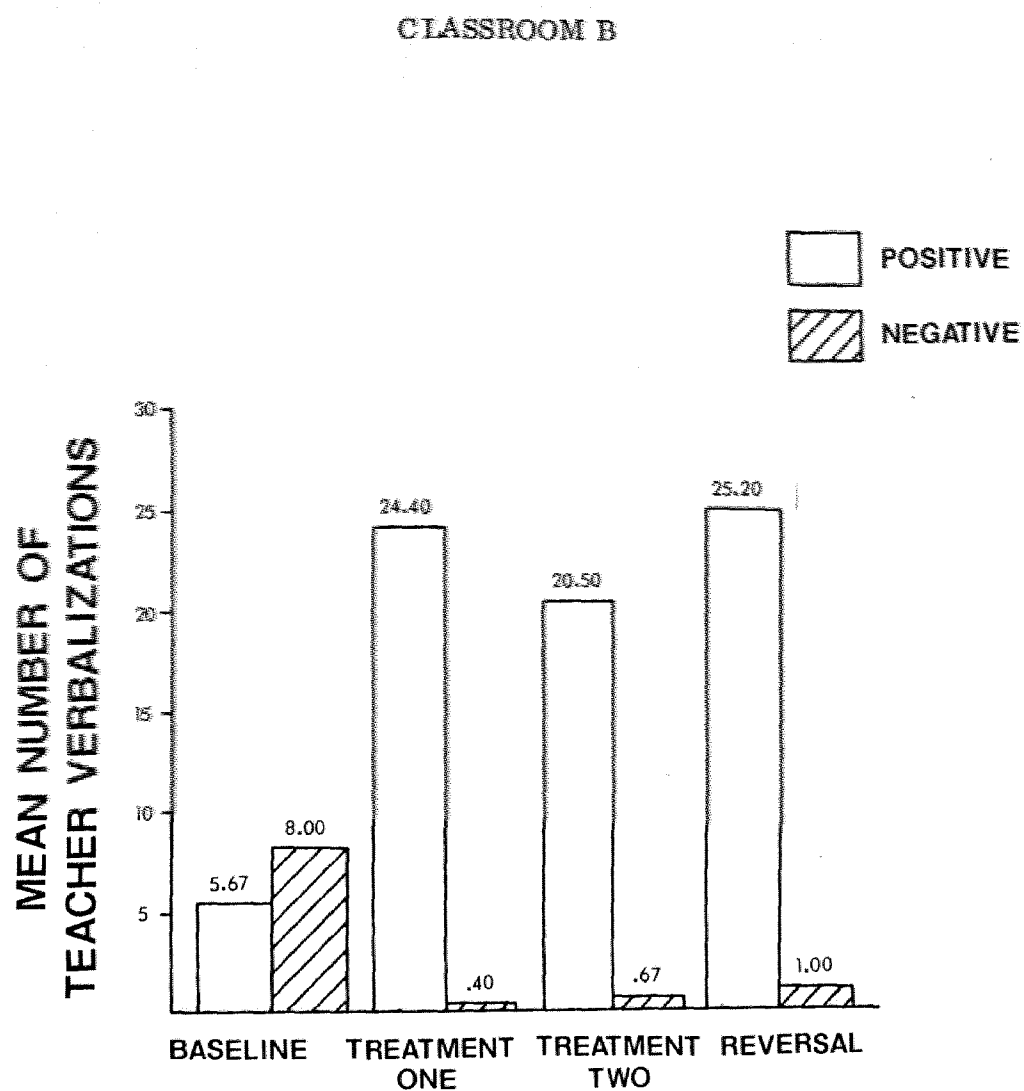


Figure 4

Mean Number of Positive and Negative
Verbalizations for Classroom B
in Conditions I, II, III, and IV

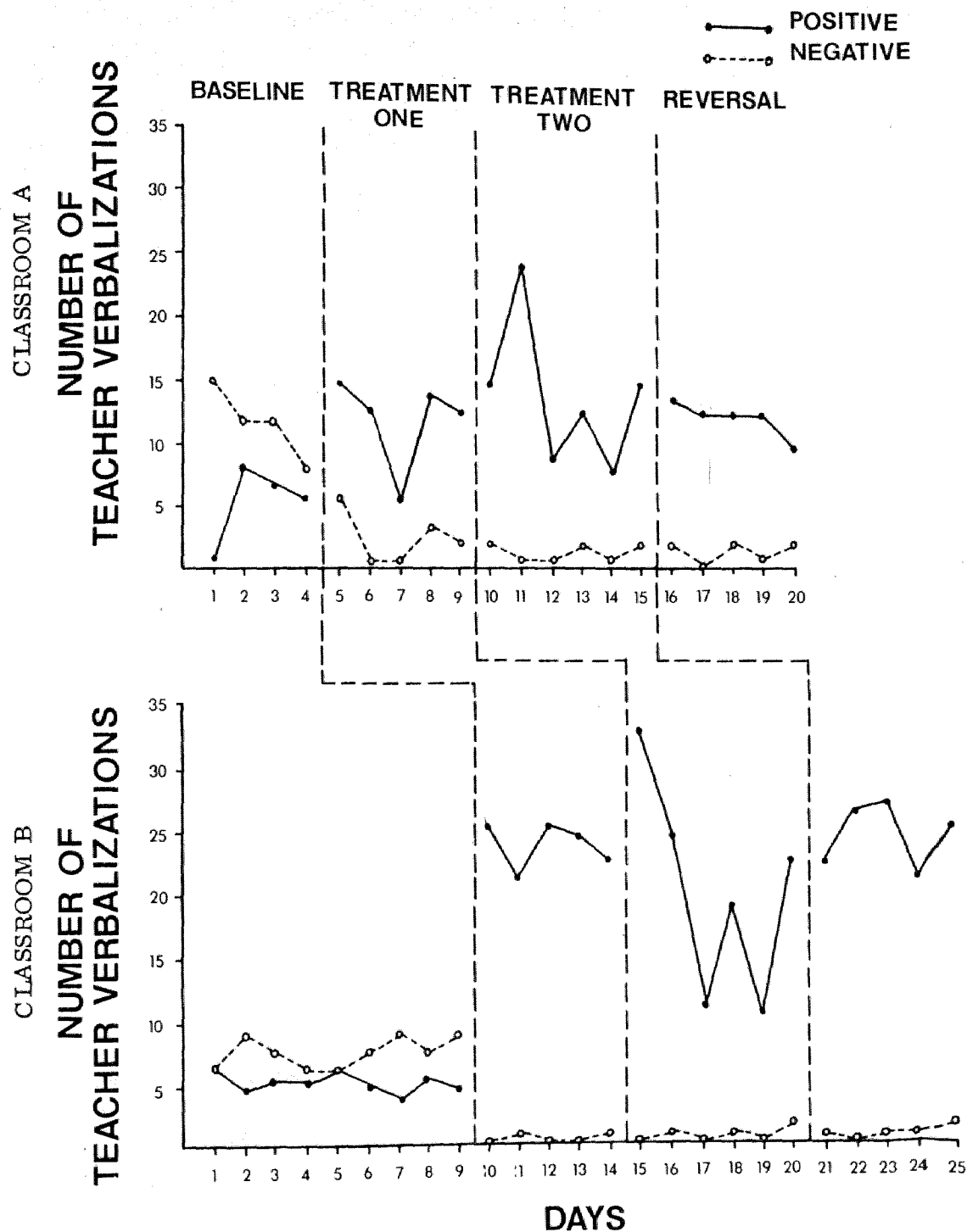


Figure 5

Number of Teacher Positive and Negative Verbalizations for Classrooms A and B in Conditions I, II, III, and IV

condition I (baseline), condition II (treatment one), condition III (treatment two), and condition IV (reversal) in Classroom A. Classroom A contained twenty-four students who were time-sampled each sixty seconds for on-task behavior for a duration of fifteen minutes. This made it possible for a maximum of three hundred and sixty (24×15) on-task student behaviors to be measured in the observation time of one day.

The data in Figure 6 present the number of students involved in on-task behavior for Classroom A in all four conditions. The range and mean scores for each condition in Classroom A are as follows:

<u>Condition</u>	<u>Range</u>	<u>Mean</u>
I Baseline	275-315	297.00
II Treatment One	325-338	331.50
III Treatment Two	335-347	342.00
IV Reversal	342-349	346.00

Classroom B

Data were also collected for the number of students on-task during condition I (baseline), condition II (treatment one), condition III (treatment two), and condition IV (reversal) in Classroom B. Classroom B contained twenty-three students who were time-sampled each sixty seconds for on-task behavior for a duration of fifteen minutes. This made it possible for a maximum of three hundred forty-five (23×15) on-task student behaviors to be measured in the observation time of one day.

The data in Figure 7 present the number of students involved in on-task behavior for Classroom B in all four conditions. The range and mean

CLASSROOM A

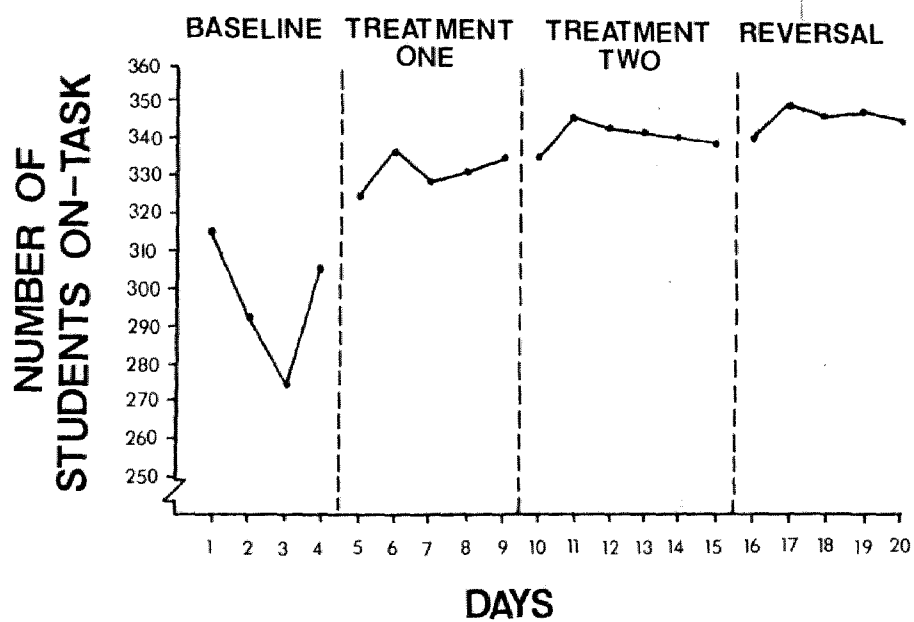


Figure 6

Number of Students On-Task for Classroom A
in Conditions I, II, III, and IV

CLASSROOM B

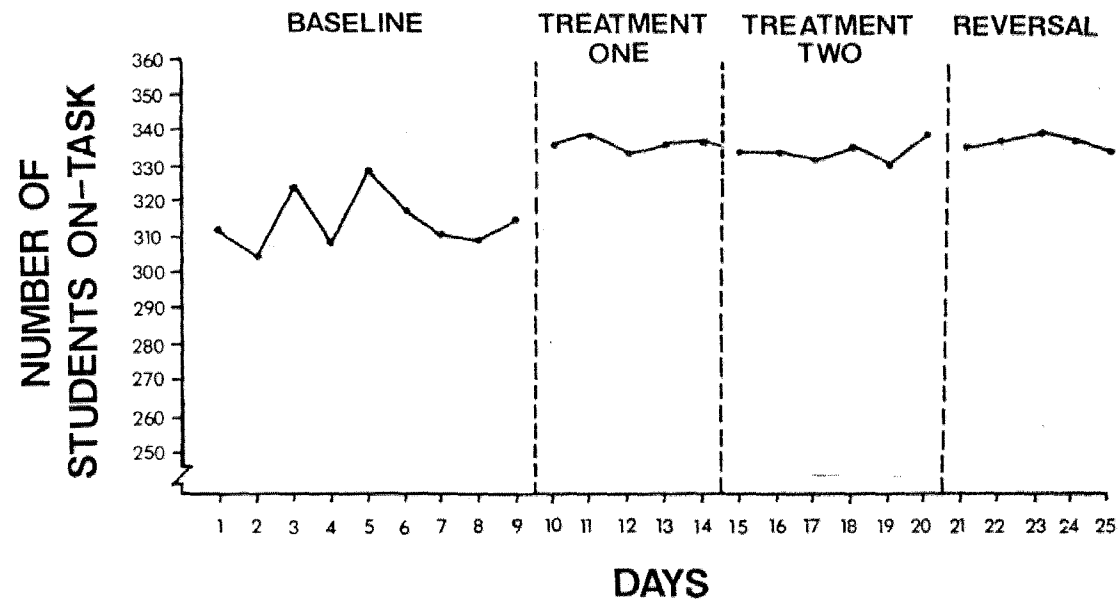


Figure 7

Number of Students On-Task for Classroom B
in Conditions I, II, III, and IV

scores for each condition in Classroom B are as follows:

<u>Condition</u>	<u>Range</u>	<u>Mean</u>
I Baseline	305-329	314.89
II Treatment One	335-339	337.20
III Treatment Two	332-340	335.50
IV Reversal	336-340	337.80

Classrooms A and B Combined

Figure 8 graphically summarizes the data so far presented on on-task student behavior for Classrooms A and B. This graphically demonstrates the multiple baseline design implemented in this experiment and demonstrates the potency of the treatment procedure to increase on-task student behavior by increasing positive teacher verbalizations and decreasing negative teacher verbalizations. This will be discussed at length later in the chapter.

In this investigation the variables for which the experimenters were most concerned were the teacher positive and negative verbalizations and the number of students on-task. However, as part of the procedure neutral teacher verbalizations were also measured and recorded. The following is the result of those measures.

TEACHER NEUTRAL VERBALIZATIONS

Classrooms A and B Combined

The change in rate of neutral teacher verbalizations, although interesting, was of no immediate concern to this study. Figure 9 graphically summarizes the data collected on neutral teacher verbalizations in condition I

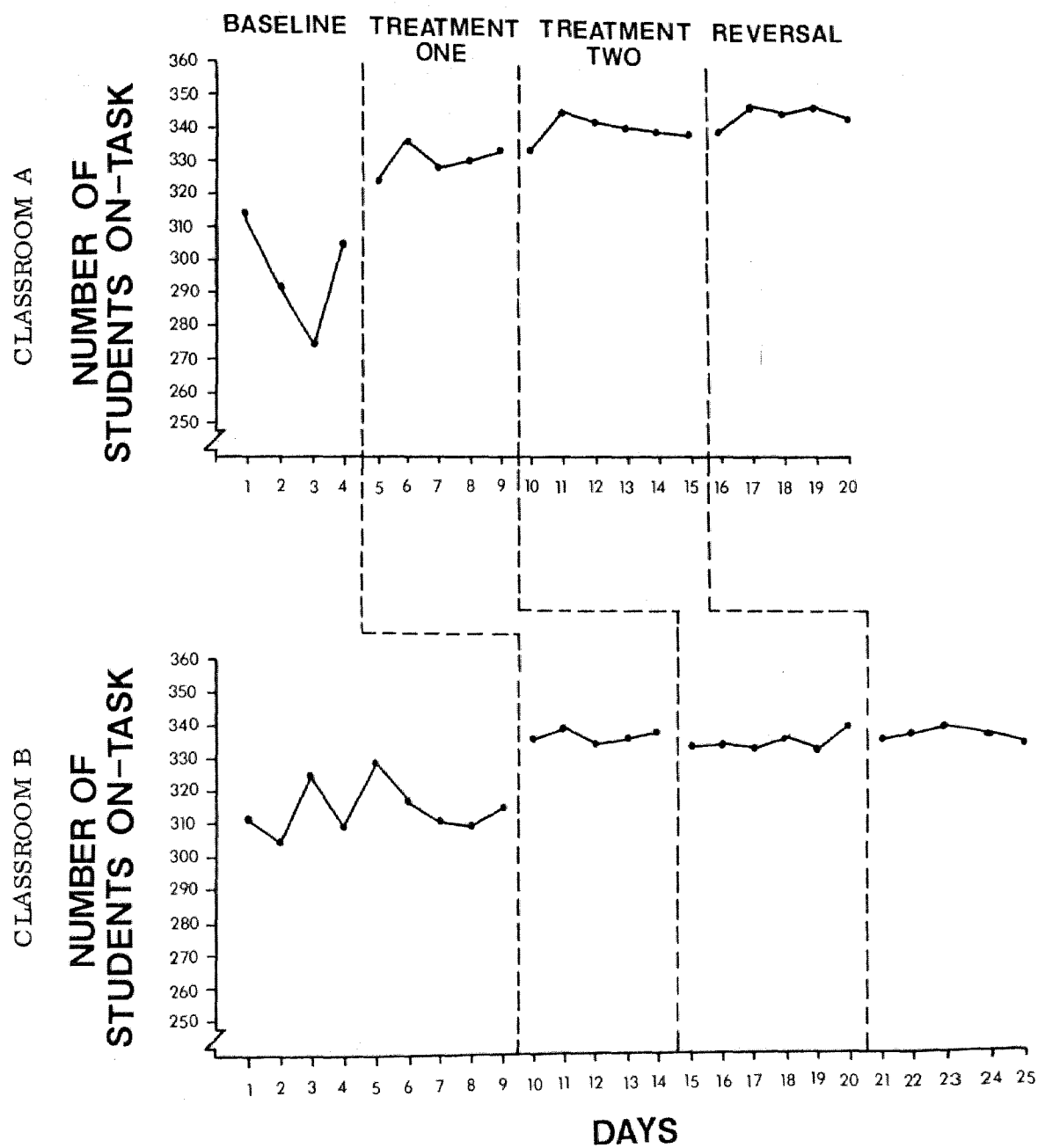


Figure 8

Number of Students On-Task for Classrooms A and B
in Conditions I, II, III, and IV

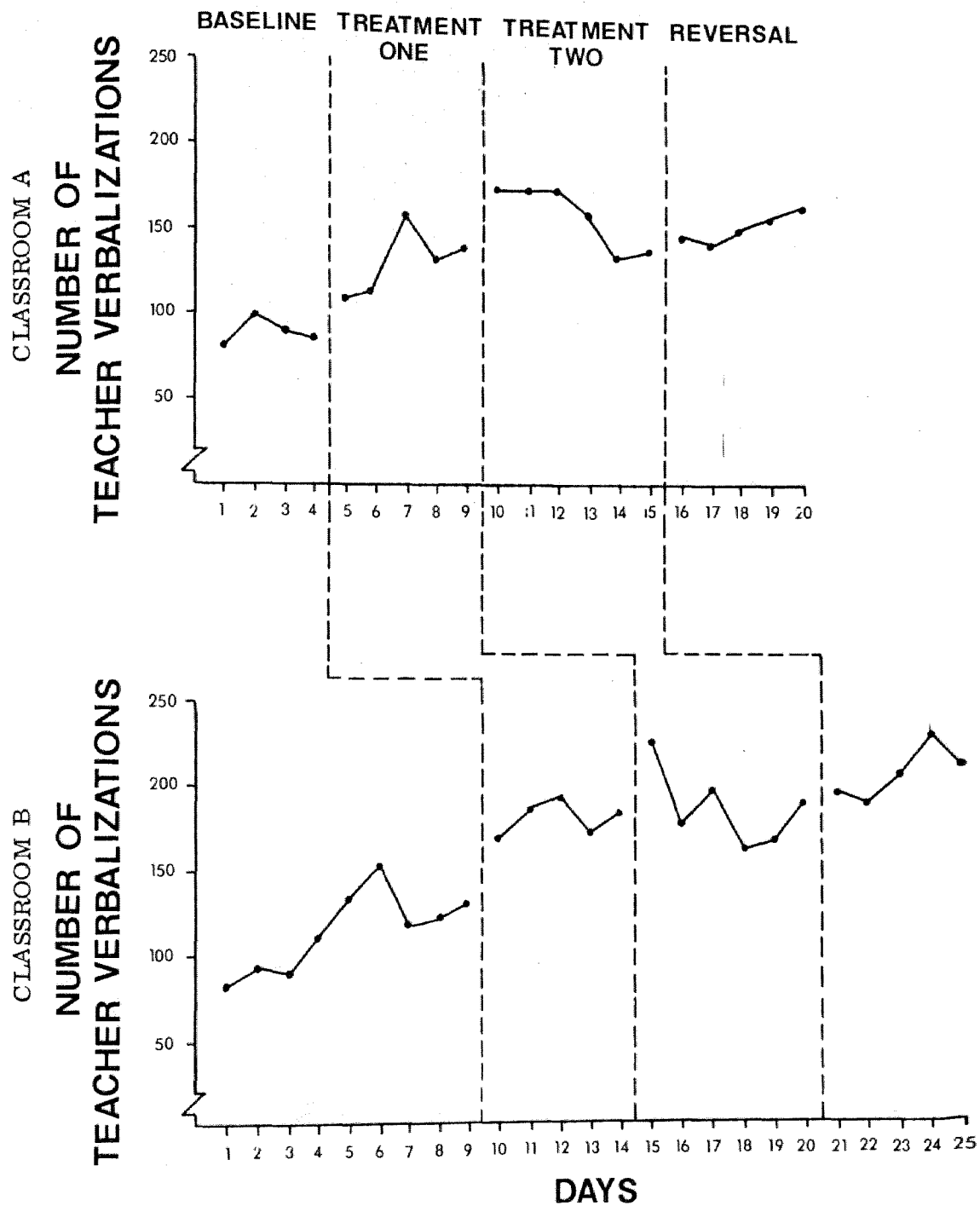


Figure 9

Number of Teacher Neutral Verbalizations
for Classrooms A and B in
Conditions I, II, III, and IV

(baseline), condition II (treatment one), condition III (treatment two), and condition IV (reversal) for both Classrooms A and B. The range and mean scores for each condition in Classroom A and B are as follows:

<u>Condition</u>	<u>Range</u>	<u>Mean</u>
<u>Classroom A</u>		
I Baseline	82-99	90.25
II Treatment One	114-159	133.20
III Treatment Two	138-175	160.33
IV Reversal	145-167	154.60
<u>Classroom B</u>		
I Baseline	80-152	115.44
II Treatment One	169-195	181.60
III Treatment Two	164-226	185.83
IV Reversal	185-235	207.80

The results will be discussed briefly later in this chapter.

DISCUSSION OF THE FINDINGS

This research study was specifically designed to investigate whether an elementary school principal could systematically change the rate of positive and negative teacher verbalizations via a cueing technique, and effect change on the total number of students involved in on-task behavior. This was experimentally analyzed utilizing an ABCA multiple-baseline design across subjects. This study was additionally completed in a relatively short time frame as the school year was drawing to a close.

Visual inspection of the data clearly yields evidence of the efficacy of this treatment strategy. The multiple-baseline design demonstrated that after

differing lengths of baseline conditions, the principal's systematic application of treatments to the two teachers induced increased rates of contingent teacher attention in the form of positive verbalizations to their respective students. In other words, the cueing technique employed by the principal substantially increased the number of positive teacher verbalizations and simultaneously decreased the number of negative teacher verbalizations. This treatment strategy also resulted in a concomitant increase in the number of students involved in on-task behavior in the classroom.

Research reported earlier by Brown¹ indicated that modern principals are moving away from purely administrative roles into the acceptance of duties as educational leaders. As an educational leader ". . . the principal must effect positive changes in the teacher's teaching behavior in the classroom so that teachers can in turn initiate and maintain positive changes in student behavior."² In concurrence, Ulich³ has proposed that the primary role of the principal is to further the educational process by guiding teachers through more effective methods directly in their classrooms. In this study the principal did become actively involved in effecting positive changes in the teachers' behavior in the classroom which, in turn, increased the on-task behavior of the students.

The applied behavior research design supported the cause-effect

¹Brown, loc. cit.

²Ibid, pp. 59-60.

³R. Ulich, Philosophy of Education (New York: American Book Company, 1961).

relationship between the application of treatment by the principal and the increased rate of positive teacher verbalizations. In Classroom A the pretreatment, or baseline condition, mean score for positive teacher verbalizations was 5.50, while the mean score for negative teacher verbalizations was 11.75. This compares to a posttreatment, or reversal condition, mean score for positive teacher verbalizations of 12.60 and a mean score for negative teacher verbalizations of 1.40. This represents a positive teacher verbalization increase of 129 percent and a negative teacher verbalization decrease of 88 percent from pre- to posttreatment.

In Classroom B the pretreatment mean score for positive teacher verbalizations was 5.67, while the mean score for negative teacher verbalizations was 8.00. This compares to a posttreatment mean score for positive teacher verbalizations of 25.20 and a mean score for negative teacher verbalizations of 1.00. This represents a positive teacher verbalization increase of 344 percent and a negative teacher verbalization decrease of 88 percent from pre- to posttreatment.

Experimental control was verified by the multiple baseline design and the ensuing disparity between the pre- and posttreatment mean scores for both teachers. Although Teachers A and B varied in their amount of verbalization change, both steadily increased their rate of selectively attending to appropriate student behaviors throughout the treatment conditions. Teacher A's increases in positive verbalizations were not as dramatic as Teacher B's, but Teacher B had less distinct disparity between positive and negative verbalizations during the baseline condition than did Teacher A.

The teachers' negative verbalization rates decreased similarly from pre- to posttreatment. However, Teacher B had a more pronounced disparity between the posttreatment positive and negative verbalization rate due to her superior rate of increased positive verbalizations. It appears that Teacher B responded more readily to the treatment conditions than did Teacher A. These verbalization samples may have reflected the presence of the observer-experimenter(s), but the same observer-experimenter(s) were utilized throughout the study.

With cueing from the principal this change in verbalization rate might be explained by the teachers finding it more reinforcing to emit positive verbalizations than negative verbalizations for two main reasons: first, emitting a negative verbalization was immediately followed by a cue from the principal forcing the teacher to find four students behaving appropriately and verbally attend to them in the form of praise. This cueing via the principal was probably considered punishing by the teachers and therefore desirable to avoid; and secondly, both teachers independently found their students to respond well, in the form of on-task behavior, to positive verbalizations.

It follows then that along with assisting the two teachers to increase their rate of positive verbalizations directly in the classroom the study also provided a method of indirectly altering student on-task behavior.

There is an apparent causal relationship between the increase in the number of positive teacher verbalizations and the decreased number of negative verbalizations on the number of students involved in on-task behavior.

This is supported by research reported earlier by Thomas, Becker, and Armstrong¹ in which the authors stated, "A teacher can modify and control the behavior of her students by controlling her own responses."² Once this treatment was initiated and contingent teacher attention was actively promoted by the principal, the students apparently realized their chances of gaining teacher attention were greater if they manifested appropriate on-task behavior rather than inappropriate behavior (which in all probability had been inadvertently reinforced prior to the study, especially in Classroom A). Thus, the students increased that behavior which they saw as gaining them the most reinforcement (appropriate on-task behavior) and suppressed that behavior which they saw as not gaining reinforcement (inappropriate behavior). This change in student behavior was directly related to the change in reinforcement (increase in positive verbalizations and decrease in negative verbalizations) as delivered by the teachers. And, at the same time, this change in teacher behavior (type of verbalization emitted) was directly related to the systematic cueing technique employed by the principal.

In Classroom A the pretreatment, or baseline condition, mean score for the number of students on-task was 297.00, while the posttreatment, or reversal condition, mean score for the number of students on-task was 346.00. This represents an increase of 16 percent more students involved in on-task behavior in posttreatment and results in a mean of 96 percent of students on-task in posttreatment.

¹Thomas, Becker, and Armstrong, loc. cit.

²Ibid, p. 35.

In Classroom B the pretreatment mean score for the number of students on-task was 314.89, while the posttreatment mean score for the number of students on-task was 337.80. This represents an increase of 7 percent more students involved in on-task behavior in posttreatment and results in a mean of 98 percent of the classroom students on-task in posttreatment.

Although both classrooms demonstrated increased rates on on-task student behavior, it is evident that Classroom A's percentage of increase was better than double that of Classroom B's. This is perhaps explainable in that Teacher B had a larger proportion of positive to negative verbalizations from the outset than Teacher A. During baseline, Teacher B emitted approximately one- and one-third more negative verbalizations than positive verbalizations, compared to Teacher A who emitted better than twice as many negative verbalizations than positive verbalizations. Thus, Teacher B's students were more accustomed to receiving positive teacher verbalizations for appropriate behavior than Teacher A's. As such, the students in Classroom B were already receiving more positive teacher attention and were already attending on-task at a higher rate prior to the experiment. Thus, the students in Classroom B did not have as much improvement potential as the students in Classroom A.

It is important to point out research by Walker, Mattson, and Buckley¹

¹H. M. Walker, R. H. Mattson, and N. Buckley, "Special Class Placement as a Treatment Alternative for Deviant Behavior in Children," Modifying Deviant Social Behavior in Classroom Settings, ed. F. A. Benson (Eugene, Ore.: University of Oregon Press, 1969), p. 37.

and Werry and Quay¹ that suggests the average student in a regular classroom displays on-task behavior approximately 75-80 percent of the time. During baseline the mean percentage of students on-task in Classroom A was eighty, while the mean percentage of students on-task in Classroom B was ninety-one. This would indicate that both classrooms were already at or above the mean for on-task student behavior, thus adding more credence to the power of the treatment.

Although data on neutral teacher verbalizations were recorded, no substantial change was anticipated nor actively sought. However, for Teacher A the mean rate of neutral teacher verbalizations increased from 90.25 to 154.60 from the pre- to posttreatment conditions, and for Teacher B the mean rate of neutral teacher verbalizations increased from 115.44 to 207.80 from pre- to posttreatment conditions. In both classrooms the increases are substantial and might be explainable in terms of total teacher verbal output and task complexity.

Once treatment was initiated, both teachers continually increased their verbal rate in an attempt to emit a higher percentage of positive teacher verbalizations. Often these were unsuccessful positive verbalizations and fell into the category of neutral teacher verbalizations.

Probably more importantly, the instructional tasks during which this investigation took place became more complex, demanding an ever-increasing

¹J. S. Werry and H. C. Quay, "Observing the Classroom Behavior of Elementary School Children," Exceptional Children, XXXV (1969), 461-470.

higher rate of teacher verbalization output.

This study demonstrated how an elementary school principal could directly assist teachers in the classroom to change their verbal responses to students. This was done for the specific purpose of decreasing undesirable student behavior and increasing the total number of students involved in on-task behavior. Thus, the study demonstrated how the principal indirectly affected student on-task behavior in the classroom through modifying teacher verbal behavior. To accomplish this the principal implemented a systematic cueing technique which signaled the individual teacher each time she emitted a negative verbalization and required her to find four students engaged in appropriate on-task behavior and praise each one individually. This process, over the length of the experiment, increased the number of positive teacher verbalizations and decreased the number of negative teacher verbalizations as each of the teachers found it more reinforcing to emit positive verbalizations. The students, in turn, learned that it was more reinforcing to display appropriate on-task behavior than inappropriate behavior so they increased their appropriate on-task behavior and decreased their inappropriate behavior.

These findings are summarized in Chapter 5 along with the conclusions and recommendations resulting from this investigation.

Chapter 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

SUMMARY

The purpose of this study was to analyze experimentally the effects of an elementary school principal's cueing technique on the number of positive and negative teacher verbalizations, and measure the effect that this verbalization change had on the total number of students involved in on-task behavior in the classroom. This research was initiated to demonstrate that the principal could directly assist teachers in the classroom. The directional hypothesis stated:

If, in fact, the elementary school principal can systematically change the rate of positive and negative teacher verbalizations to students via a cueing technique, then:

- 1) this treatment strategy will increase the number of positive teacher verbalizations;
- 2) this treatment strategy will decrease the number of negative teacher verbalizations;
- 3) this treatment strategy will increase the total number of students involved in on-task behavior.

This study varied from previous investigations in that it involved the principal in actively assisting teachers with verbalization change directly in the classroom and examined on-task behavior of each and every student in the

classroom. This study additionally sought to maintain a low response cost; that is, to engage a minimum amount of principal and teacher contact time.

The multiple-baseline research technique was employed to analyze the treatments in the two adjoining second grade classrooms. The independent variable for the two teachers was the cueing technique implemented by the principal, while the dependent variables for the teachers were their positive and negative verbalizations. The independent variables for the students were the teachers' positive and negative verbalizations, while the dependent variable for the students was their on-task behavior.

The results of this study demonstrated that for both teachers the systematic application of the cueing technique employed by the principal (independent variable) substantially increased the number of positive teacher verbalizations (dependent variable) and conversely decreased the number of negative teacher verbalizations (dependent variable). The results of this investigation also demonstrated that for both classrooms of students the increased number of positive teacher verbalizations (independent variable) and decreased number of negative teacher verbalizations (independent variable) increased the total number of students involved in on-task behavior (dependent variable).

This study also demonstrated a low response cost in keeping with the intent to develop a practical and workable technique for principals to assist teachers directly in the classroom.

The cost in preparation for the principal amounted to approximately two hours of time prior to the investigation in learning the experimental procedure and in practicing the recording techniques. Once the research was

underway, the principal invested fifteen minutes per session each time he visited a classroom, for a total of approximately eleven and a half hours of actual experimentation time. Certainly this represents a low response cost for the principal, considering the magnitude of the behavior change which took place in the teachers' verbalizations.

The response cost for the two teachers was negligible, as no preparation time was required and the time invested in the experiment was time during which the teachers were already involved in instruction. The experiment did not interfere with the instructional tasks and, in fact, the teachers may have had more time for instruction as an increasing number of students engaged in on-task behavior as an alternative to inappropriate behavior. This response cost for the teachers was a small investment in regard to the amount of change which took place in the students' on-task behavior.

What is of primary significance here is that the resources and reinforcers utilized in this study are available in almost every school, require a minimal amount of time, and demand no monetary expense.

CONCLUSIONS

The present study yielded empirical evidence demonstrating that an elementary school principal could apply a cueing technique to substantially increase the number of positive teacher verbalizations while markedly decreasing the number of negative teacher verbalizations. This procedure and the resulting verbalization change directly increased the number of students involved

in on-task behavior in both experimental classrooms. The power of this procedure was verified by the utilization of the multiple baseline research design.

Subjective feedback from the principal and teachers indicated that the procedure was a positive approach to changing teacher and student behavior and suggested that it could be feasibly implemented for teacher evaluation and training.

The principal and teachers were largely unacquainted with applied behavior analysis techniques prior to this investigation and to their knowledge had not been involved in implementing systematic social reinforcement procedures. However, the data indicated that both the principal and teachers were able to effect increases in specific behaviors of their target subjects. The principal was able to readily modify the number of teacher positive and negative verbalizations, while the teachers were able to effectively increase the probability that each student would display on-task behavior.

This study not only provided a simple yet viable procedure for principals to use to assist teachers directly in the classroom and a technique for teachers to use effectively with students, but also presented supportive data that applied behavior analysis in the form of contingent social reinforcement is a useful method to improve inappropriate and undesirable behavior. The procedure, if learned and used correctly along with other behavioral techniques, appears to be an encouraging pragmatic contribution which allows educators to manage their own verbalizations and promote appropriate and desirable behaviors in their students.

RECOMMENDATIONS

Although the applied behavior analysis strategy employed in this study proved to be effective for this population and setting, the extent to which this same procedure can be applied to other populations and settings should be explored. Further research appears warranted in the following areas:

1. Replication of treatment conditions with principals at different grade levels. Data obtained from such studies could demonstrate the effectiveness of this treatment on principals at different levels, teachers at different levels, and students at different levels.
2. Replication of treatment conditions with teachers who are less open, responsive, and cooperative (e.g. non-volunteers) than those involved in this study. The resulting data might indicate the feasibility of using this strategy for teacher evaluation and training.
3. Additional research exploring the effectiveness of these treatment conditions with minority students and urban communities. This research could possibly provide additional evidence on the utility of these treatment strategies.

BIBLIOGRAPHY

BIBLIOGRAPHY

A. BOOKS

- Benson, F. A., ed. Modifying Deviant Social Behavior in Classroom Settings. Eugene, Ore.: University of Oregon Press, 1969.
- Clark, F. W., D. R. Evans, and L. A. Hamerlynck, eds. Implementing Behavioral Programs for Schools and Clinics. Champaign, Ill.: Research Press, 1972.
- Franks, C. M., ed. Assessment and Status of the Behavior Therapies and Associated Developments. New York: McGraw-Hill, 1969.
- Hess, R. D., and R. M. Bear, eds. Early Education: Current Theory, Research and Practice. Chicago: Aldine, 1968.
- Reese, H. W., and L. P. Lipsitt, eds. Experimental Child Psychology. New York: Academic Press, 1970.
- Ulich, R. Philosophy of Education. New York: American Book Company, 1961.

B. PERIODICALS

- Allen, K. E., B. Hart, J. S. Buell, F. R. Harris, and M. M. Wolf. "Effects of Social Reinforcement on Isolate Behavior of a Nursery School Child." Child Development, XXV (1964), 511-518.
- Ayllon, T., and M. D. Roberts. "Eliminating Discipline Problems by Strengthening Academic Performance." Journal of Applied Behavior Analysis, VII (1974), 71-76.
- Baer, D. M., M. M. Wolf, and T. R. Risley. "Some Current Dimensions of Applied Behavior Analysis." Journal of Applied Behavior Analysis, I (1968), 91-97.
- Broden, M., C. Bruce, M. A. Mitchell, V. Carter, and R. V. Hall. "Effects of Teacher Attention on Attending Behavior of Two Boys at Adjacent Desks." Journal of Applied Behavior Analysis, III (1970), 199-203.
- _____, R. V. Hall, A. Dunlap, and R. Clark. "Effects of Teacher Attention and a Token Reinforcement System in a Junior High School Special Education Class." Exceptional Children, XXXVI (1970), 341-349.

- Brown, R. E., R. E. Copeland, and R. V. Hall. "The School Principal as a Behavior Modifier." Journal of Educational Research, LXVI (1972), 175-180.
- _____, R. E. Copeland, and R. V. Hall. "School Phobia: Effects of Behavior Modification Treatment Applied by an Elementary School Principal." Child Study Journal, IV (1974), 125-133.
- Buell, J., P. Stoddard, F. R. Harris, and D. M. Baer. "Collateral Social Development Accompanying Reinforcement of Outdoor Play in a Preschool Child." Journal of Applied Behavior Analysis, I (1968), 157-173.
- Chadwick, B. A., and R. C. Day. "Systematic Reinforcement: Academic Performance of Underachieving Students." Journal of Applied Behavior Analysis, IX (1976), 65-78.
- Cooper, M. L., C. L. Thomson, and D. M. Baer. "The Experimental Modification of Teacher Attending Behavior." Journal of Applied Behavior Analysis, III (1970), 153-157.
- Copeland, R. E., R. E. Brown, S. Axelrod, and R. V. Hall. "Effects of a School Principal Praising Parents for Student Attendance." Educational Technology, XII (1972), 56-59.
- _____, R. E. Brown, and R. V. Hall. "The Effects of Principal-Implemented Techniques on the Behavior of Pupils." Journal of Applied Behavior Analysis, VII (1974), 77-86.
- Cossairt, A., R. V. Hall, and B. L. Hopkins. "The Effects of Experimenter's Instructions, Feedback, and Praise on Teacher Praise and Student Attending Behavior." Journal of Applied Behavior Analysis, VI (1973), 89-100.
- Ferritor, D. E., D. Buckholdt, R. L. Hamblin, and L. Smith. "The Non-effects of Contingent Reinforcement for Attending Behavior on Work Accomplished." Journal of Applied Behavior Analysis, V (1972), 7-17.
- Foxx, R. M., and N. H. Azrin. "Restitution: A Method of Eliminating Aggressive-Disruptive Behavior of Retarded and Brain Damaged Patients." Behavior Research and Therapy, X (1972), 15-27.
- Hall, R. V., and M. Broden. "Behavior Changes in Brain-Injured Children Through Social Reinforcement." Journal of Experimental Child Psychology, V (1967), 463-479.

- _____, C. Cristler, S. Cranston, and B. Tucker. "Teachers and Parents as Researchers Using Multiple Baseline Designs." Journal of Applied Behavior Analysis, VI (1971), 247-255.
- _____, R. Fox, D. Willard, L. Goldsmith, M. Emerson, M. Owen, F. Davis, and E. Porcia. "The Teacher as Observer and Experimenter in the Modification of Disputing and Talking-Out Behaviors." Journal of Applied Behavior Analysis, VI (1971), 141-149.
- _____, D. Lund, and D. Jackson. "Effects of Teacher Attention in Study Behavior." Journal of Applied Behavior Analysis, I (1968), 1-12.
- _____, M. Panyan, D. Rabon, and M. Broden. "Instructing Beginning Teachers in Reinforcement Procedures Which Improve Classroom Control." Journal of Applied Behavior Analysis, I (1968), 315-322.
- Harris, F. R., M. K. Johnston, C. S. Kelly, and M. M. Wolf. "Effects of Positive Social Reinforcement on Regressed Crawling of a Nursery School Child." Journal of Educational Psychology, LV (1964), 35-41.
- _____, M. M. Wolf, and D. M. Baer. "Effects of Adult Social Reinforcement on Child Behavior." Young Children XX (1964), 8-17.
- Hart, B. M., K. E. Allen, J. S. Buell, F. R. Harris, and M. M. Wolf. "Effects of Social Reinforcement on Operant Crying." Journal of Experimental Child Psychology, I (1964), 145-153.
- _____, N. J. Raynolds, D. M. Baer, E. R. Brawley, and F. R. Harris. "Effect of Contingent and Non-Contingent Social Reinforcement on the Cooperative Play of a Preschool Child." Journal of Applied Behavior Analysis, I (1968), 73-76.
- Hasazi, J. E., and S. E. Hasazi. "Effects of Teacher Attention on Digit-Reversal Behavior in an Elementary School Child." Journal of Applied Behavior Analysis, V (1972), 157-162.
- Hopkins, B. L. "Effects of Candy and Social Reinforcement, Instructions, and Reinforcement Schedule Learning on the Modification and Maintenance of Smiling." Journal of Applied Behavior Analysis, I (1968), 121-129.
- Kazdin, A. E. "Methodological and Assessment Considerations in Evaluating Reinforcement Programs in Applied Settings." Journal of Applied Behavior Analysis, VI (1973), 517-531.

- Kelly, M. B. "A Review of the Observational Data-Collection and Reliability Procedures Reported in the Journal of Applied Behavior Analysis." Journal of Applied Behavior Analysis, X (1977), 97-101.
- Madsen, C. H., W. C. Becker, and D. R. Thomas. "Rules, Praise, and Ignoring: Elements of Elementary Classroom Control." Journal of Applied Behavior Analysis, I (1968), 139-150.
- McAllister, L. W., J. G. Stachowiak, D. M. Baer, and L. Conderman. "The Application of Operant Conditioning Techniques in a Secondary School Classroom." Journal of Applied Behavior Analysis, II (1969), 277-285.
- McKenzie, H. S., A. N. Egner, M. F. Knight, P. P. Perelman, B. M. Schneider, and J. S. Gavin. "Training Consulting Teachers to Assist Elementary Teachers in the Management and Education of Handicapped Children." Exceptional Children, XXXVII (1970), 137-143.
- Parsonson, B. S., A. M. Baer, and D. M. Baer. "The Application of Generalized Correct Social Contingencies: An Evaluation of a Training Program." Journal of Applied Behavior Analysis, VII (1974), 427-437.
- Pinkston, E. M., N. M. Reese, J. M. LeBlanc, and D. M. Baer. "Independent Control of a Preschool Child's Aggression and Peer Interaction by Contingent Teacher Attention." Journal of Applied Behavior Analysis, VI (1973), 115-124.
- Reynolds, N. J., and T. R. Risley. "The Role of Social and Material Reinforcers in Increasing Talking of a Disadvantaged Preschool Child." Journal of Applied Behavior Analysis, I (1968), 253-262.
- Ringer, V. M. J. "The Use of a 'Token Helper' in the Management of Classroom Behavior Problems and in Teacher Training." Journal of Applied Behavior Analysis, VI (1973), 671-677.
- Rowbury, T. G., A. M. Baer, and D. M. Baer. "Interactions Between Teacher Guidance and Contingent Access to Play in Developing Pre-Academic Skills of Deviant Preschool Children." Journal of Applied Behavior Analysis, IX (1976), 85-104.
- Sajwaj, T., S. Twardosz, and M. Burke. "Side Effects of Extinction Procedures in a Remedial Preschool." Journal of Applied Behavior Analysis, V (1972), 163-175.
- Schutte, R. C., and B. L. Hopkins. "The Effects of Teacher Attention on Following Instructions in a Kindergarten Class." Journal of Applied Behavior Analysis, III (1970), 117-122.

Strain, P. S., R. E. Shores, and M. M. Kerr. "An Experimental Analysis of 'Spillover' Effects on the Social Interactions of Behaviorally Handicapped Preschool Children." Journal of Applied Behavior Analysis, IX (1976), 31-40.

_____, and M. A. Timm. "An Experimental Analysis of Social Interaction Between a Behaviorally Disordered Preschool Child and Her Classroom Peers." Journal of Applied Behavior Analysis, VII (1974), 583-590.

Thomas, D. R., W. C. Becker, and M. Armstrong. "Production and Elimination of Disruptive Classroom Behavior by Systematically Varying Teacher's Behavior." Journal of Applied Behavior Analysis, I (1968), 35-45.

Werry, J. S., and H. C. Quay. "Observing the Classroom Behavior of Elementary School Children." Exceptional Children, XXXV (1969), 461-470.

Zimmerman, E. H., and J. Zimmerman. "The Alteration of Behavior in a Special Classroom Situation." Journal of The Experimental Analysis of Behavior, V (1962), 59-60.

C. DISSERTATION ABSTRACTS

Brown, R. E. Effects of an Elementary School Principal Systematically Reinforcing Students for Learning Multiplication Facts. Unpublished Doctoral Dissertation, University of Kansas, 1975.

Cossairt, A. A. The Effects of a Principal's "Supervision Package" on Teacher and Student Behaviors in the Classroom. Unpublished Doctoral Dissertation, University of Kansas, 1974.

APPENDIX A
RECORDING FORM

Date:	(+) more than two	(-) more than two	(o) more than two	
Name	Positive Verbalization	Negative Verbalization	Neutral Verbalization	No. On- Task
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
Total:				

APPENDIX B
POSTSTUDY FEEDBACK FROM
THE PRINCIPAL

POSTSTUDY FEEDBACK FROM THE PRINCIPAL

The principal involved in this investigation was requested to share his opinions and insights of this study for the specific purpose of improving its design, implementation, and applicability.

Overall, the principal felt that the research was well worth the time spent and provided him with valuable insight into the day-to-day interactions of the teachers with their students. The principal stated that the methodology of the research package provided a systematic means of analyzing the teachers' verbalizations with their respective students and made it feasible for him to induce a substantial change in the teachers' verbalization rates in a relatively short period of time. The principal was likewise impressed with this strategy as an efficient and ethical way to change student on-task behavior as it promoted a positive approach to changing the behavior of both the teachers and students.

The principal thought that this research method would be appropriate and useful for teacher evaluation and more specifically for training teachers to verbally respond more positively in the classroom. However, the principal commented that it would probably be more helpful for the teacher if he could provide constant feedback throughout the training period to inform the teachers of how they were doing. He felt that feedback each day after observation, although not appropriate for a research project, would expedite the training process and provide for better trainer-trainee communication.

The principal considered this experiment reasonable for an elementary administrator to undertake considering the relatively short amount of time required from start to finish, the minimal amount of practice needed for observing and recording behavior, the simplicity of the cueing technique, the opportunity afforded for close contact with the classroom teacher, the ease of analyzing the results, and the amount of behavior change that takes place.

The principal felt that other administrators could easily implement this strategy, as it did not require a complicated research design, was not time consuming, and because it did not utilize a sophisticated, highly trained observer/experimenter.

APPENDIX C

POSTSTUDY FEEDBACK FROM

TEACHERS A AND B

POSTSTUDY FEEDBACK FROM TEACHERS A AND B

Teachers A and B were requested to share their opinions and insights of this study for the specific purpose of improving its design, implementation, and applicability.

Both teachers stated that the research project benefited them by providing the structure to be more positive. By knowing that the experiment was focusing on verbalizations, the teachers became more aware of how they verbally responded to students and provided them with a concrete place to start. Just saying, "Be more positive" is too vague, so the behavioral definitions were welcome. Both teachers noticed the positive change in student behavior and were impressed by the simplicity of the design used to promote this change.

Teachers A and B both thought that this research method would be an effective procedure to use for teacher training. Both teachers felt, however, that feedback at the end of each observation day should be added, as it would provide a closer working relationship between the principal and classroom teacher and speed up the training process.

The teachers both commented that the timing of the experiment was important. They speculated that the best time for implementation would be at the first of the year with several refresher sessions later on. They felt that this would allow for teacher growth and change and provide an opportunity to start out the year with the closely monitored goal of being more positive.

Both teachers concluded that other teachers could benefit from this training technique and wished they had been exposed to it earlier.